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ON

EPILEPSY,

HYSTERIA, AND ATAXY.

THREE LECTURES

BY

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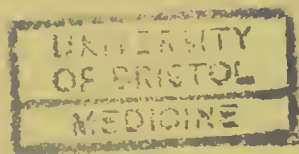
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ETC.



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## PREFACE.

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THE following pages are not intended to represent a complete treatise on Epilepsy, Hysteria, and Ataxy, but to give my views on some of the more important points in their pathology and treatment, about which, hitherto, much misconception has prevailed. If I have succeeded in showing how much may be done by treatment, in the most severe nervous disorders, which not long ago were the opprobria of medicine, I shall be amply rewarded for the trouble I have taken, and the anxiety I have experienced, in investigating those pathological conditions.

18, BRYANSTON STREET, PORTMAN SQUARE,

*October, 1866.*





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I.

ON CERTAIN POINTS IN THE  
PROGNOSIS OF EPILEPSY.



GENTLEMEN,

There are few tasks connected with the practice of our profession so difficult to us, and yet of such vital interest and importance to patients and their friends, as the formation of a correct prognosis of disease. The power to forecast the probable result of an illness; to determine whether it is likely to end in death or recovery, or in the impairment of the general health, or of any special function of the body, is one which can only be acquired by a long and persevering study of disease in all its various forms and complications, combined with the faculty of taking a comprehensive view of the history, and all the present circumstances which tend to exercise a special influence on the issue, of an individual case. There are some diseases, however, which are by the majority of medical practitioners believed to be incurable from the first, and where, therefore, no hesitation is felt in giving at once an unfavourable opinion. One of these diseases is epilepsy, a complaint which from its violent and



formidable symptoms, and the reputed inefficacy of all remedies against it, was by the Ancients believed to be a direct and irrevocable infliction of Providence, and was therefore distinguished by the term "Morbus Sacer."

Although we no longer speak of a sacred complaint, yet to this day the idea which it was intended to convey by that name, has to a great extent kept its ground amongst the medical profession. I have known instances where, as soon as the disease had become developed, the dictum went forth that the affection was incurable, that all the resources of the art were powerless against it, and that the patient and his relatives must submit to the inscrutable designs of Providence, and bear the misfortune in a meek and resigned spirit. This I would stigmatise as culpable negligence; and I have no hesitation in saying, that no progress in medical science would be possible if we were to allow this spirit to prevail, and shield our ignorance or apathy behind what we may presume to call the designs of Providence. I may remind you that "the designs of Providence" were one of the objections most pertina-

ciously put forward against vaccination, when Jenner first endeavoured to introduce this safeguard against a most destructive distemper ; an illustration sufficient to show how wrong it would be to use such false and irreverent argumentation.

It appears to me that there are two points of view from which the prognosis of epilepsy may be considered. On the one hand, we may collect and compare the therapeutical experience gained by the most competent observers, and draw our conclusions simply from the facts recorded by them in special works and periodical publications. This, according to some Pathologists, is the only safe method by which such questions can be settled, and it is one, at all events, which should never be neglected in disquisitions of this kind. On the other hand, however, we may, apart from such considerations, reflect on the intimate nature of the disease itself, and inquire whether the first principles of pathology and therapeutics, as built up and established by long and patient research, and sound and philosophical discrimination, will not show us, independently of previous experience,

the possibility of combating and even eradicating this distemper.

I am sorry to say that the latter mode of reasoning is one which at the present time is too much neglected by the medical profession. Eager as they are to accumulate facts and practical details, a sort of mental myopia is developed in many otherwise excellent observers, and they shun a philosophical consideration of medical subjects as a thing to be carefully avoided. No doubt the method to which I have adverted, has, at certain periods in the history of medicine, been much abused, but this was the result, not of any fault inherent in the mode of reasoning itself, but of a wrong and fanciful way in carrying it out. It is obvious that, where the premises from which we start, are wrong or unstable, nothing but defeat and disaster can befall our conclusions; but where these principles are right, and where our inferences are drawn with rigid adherence to the actual facts of the case, the result must necessarily be quite different.

Now, there is a time in the progress of medicine as in that of other sciences, where the mere

accumulation of multifarious details, valuable though they may be to a certain extent, ceases to be the principal condition necessary for advancement; and where a larger view of the subject, unbiassed by fancy or prejudice, becomes of paramount importance, and in its turn marks a step forward, which could not have been attained by the mere observation of isolated facts alone.

I believe the period for applying this method to the consideration of the prognosis of epilepsy has now arrived, and I hope I may succeed in proving the truth of my proposition, that *epilepsy is a curable disease*.

Before, however, entering on this disquisition, it is necessary to premise that the classification of this disease which is generally adopted, and which consists of a distinction between "centric" and "eccentric" epilepsy, is incorrect. Authors speak of eccentric epilepsy, where there is some palpable source of irritation outside of the nervous centres; such as disease of the kidney, stone in the bladder, worms in the intestines, uterine disturbances, etc. Now, it is quite true that under such conditions, epileptiform convulsions may be induced; but

then these latter are merely reflex spasms, arising from an irritation of the peripheral nerves being transmitted to the encephalon ; and have nothing to do with true, centric, or idiopathic epilepsy. This latter is, strictly speaking, the only complaint which should be called epilepsy, and this it is which I mean whenever I employ the term. True epilepsy is generally looked upon as incurable ; while the so-called eccentric affections have always appeared to afford better hopes of recovery. It is, in fact, not difficult to remove a stone from the bladder, to rectify uterine derangements, or to expel worms from the bowels ; and by thus removing the sources of irritation, upon which the convulsions depended, to cure the latter. The real difficulty lies with that idiopathic affection, which is exclusively referable to an abnormal condition of the brain, and in which the most careful examination fails to discover any outside sources of irritation.

Thus, Dr. Watson says, in his *Lectures on the Principles and Practice of Physic*, that “the prognosis is bad in centric cases, and better in the eccentric.” Dr. Barlow, in his *Manual of the*



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Practice of Medicine, expresses himself to the same effect; he says, that "the prognosis of epilepsy is in the general way unfavourable," and that, "as regards the form of the disease, the centric is more incurable than the eccentric, and the eccentric is more hopeful in the inverse proportion of the time during which it has lasted." Dr. Aitken, in his work on the Science and Practice of Medicine, says that "epileptics attacked after puberty are generally incurable, and especially when epilepsy is conjoined with insanity." Dr. Tanner, in his able work on the Practice of Medicine, and Dr. Sieveking, in his Treatise on Epilepsy and Epileptiform Seizures, do not commit themselves to any definite opinion on the subject of prognosis; but the general tone of their remarks is far from hopeful. Dr. Chambers, in his "Lectures, chiefly clinical," remarks that, in his practice at St. Mary's Hospital, he has, as a rule, refused to admit long-standing cases of epilepsy, as causing a great deal of trouble, and expending in vain the funds of the Hospital. He thinks that trials of all remedies should be made on recent cases, "for confirmed epilepsy has become

such a habit in the system, that it may be looked upon as incurable." I must confess to some astonishment at finding in Dr. Chambers' clever book, some recent cases of his set down as "cured" which had not been under observation longer than eight or ten days after the cessation of the attacks. Nothing would be easier than to cure all cases of epilepsy, however severe, if we chose to be satisfied with the cessation of attacks for so short a time.

The only two recent authors who have given a more sanguine opinion of the capabilities of treatment in epilepsy, are Dr. Radcliffe and Dr. Russell Reynolds. The former says in his *Lectures on Epilepsy, Pain, Paralysis, etc.*, that in his opinion the bromide of potassium is the remedy upon which most dependence can be placed in the treatment of this disease, and that a brighter future in the fortunes of epileptics, may be dated from the time when Sir Charles Locock first recommended that medicine. Dr. Russell Reynolds states in his work on epilepsy, that he has cured ten per cent. of the cases of this disease which came under his care.

I will now quote the views of some of the most eminent French and German physicians of the present day, on this subject. Professor Trousseau remarks, in his excellent Clinical Lectures on the Practice of Medicine, that, from the inefficacy of the treatment of epilepsy, this disease had been described as a scourge, sent by the wrath of the Almighty. He who was struck by it, was given over to convulsions, and it was believed that only a special intervention of Providence could save him from his fate. "The progress of science," continues this author, "has only slightly altered the previous state of things, and epilepsy is now-a-days generally quite as incurable as formerly." Professor Tardieu, in his recent Manual of Pathology and Clinical Medicine, endorses this opinion, and says that "there are few diseases so severe and so terrible as epilepsy, and that it is always, or nearly always, incurable."

M. Romberg does not take such a hopeless view of the case, but most remedies he mentions favourably, have reference to so-called eccentric epilepsy, and not to the real, idiopathic, or centric affection.

I now proceed to argue, whether epilepsy is generally a curable or incurable disease, by applying the first principles of pathology and therapeutics to the question.

In speaking of the prognosis of disease in general, we may divide all chronic complaints into two classes, viz., 1st, such where there are organic lesions of important organs; and 2ndly, such as depend upon disturbances of function and the finer processes of nutrition, but exist without manifest alterations of structure discoverable to our senses. Where we have to do with a tumour of the brain; with insufficiency of the valves of the heart; with aneurism of the aorta; with tubercular infiltration of pulmonary tissue; with cirrhosis of the liver; with chronic inflammation of the kidneys, etc., we may do much to relieve symptoms and to prolong life, but we have hitherto failed to discover any remedies by which we could restore organs thus damaged to their previous healthy condition. On the other hand, where the disease exists without any manifest structural lesions, which might be considered as its cause, but is only accompanied by changes in

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the intimate molecular nutrition of cells and fibres, the prognosis is, as a rule, favourable, as we possess remedies by which all the *functions* of the body, and all the finer processes of nutrition, may be powerfully influenced and controlled. The point we have to consider is, therefore, whether epilepsy is caused by structural lesions of the brain and the medulla oblongata, to which organ the symptoms point as to the seat of the disease, or whether it is merely referable to disturbed *function* and nutrition of the nervous centres.

The symptoms of epilepsy show conclusively, that in this disorder there exists a state of undue excitability in the medulla oblongata, in consequence of which the centres of consciousness and motive power are paroxysmally deprived of their proper controlling force. The irritation of the vaso-motor nerves of the encephalon, when arrived at a certain pitch, causes contractions of the arteries of the meninges, whereby cerebral circulation is arrested, and a condition of anæmia is brought about, which is the proximate cause of both loss of consciousness and of the convulsions. At first there is *tonic contraction* of the cerebral



arteries, and to this stage correspond the tonic convulsions, the tetanic rigidity of the frame; this is succeeded by *clonic contractions* of the cerebral arteries, to which again correspond the clonic convulsions observed in the muscles of the body. After the clonic contractions have subsided, *paralysis* of the arterial coats is produced, to which corresponds the stage of exhaustion and prostration, by which the epileptic fit ends. Cerebral circulation is then gradually re-established, and the patient recovers from the attack in the same measure as the brain returns to its previous condition. Now let us see, whether this state of undue excitability of the medulla oblongata, whereby the outward manifestations of epilepsy are caused, is of itself due to structural organic lesions, or merely to those finer changes in the nutrition of nervous matter, which are imperceptible to our senses and may be rectified by treatment.

In judging of the value of the results of post-mortem examinations, it is incumbent upon us to compare critically the account of the symptoms which were observed during life, with the description of the anatomical changes found after death. Mere

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accounts of pathological changes found in autopsies, without a full history of the cases, are utterly worthless. Some authors seem to have imagined, that every patient afflicted with loss of consciousness and convulsive attacks, was an epileptic; and have thus created great confusion by describing certain anatomical lesions as belonging to epilepsy, which were in reality due to widely different disorders of the brain. In other instances it appears, that cases which had originally been such of true epilepsy, had, in the course of time, become complicated with other diseases, such as paralysis and idiotcy. Anatomical changes connected with these latter complaints were then discovered after death in persons who had been undoubtedly epileptic during life, and were at once put down as the causes of the epileptic condition, while they should have been described as being connected with idiotcy and paralysis. Again, it has frequently occurred that lesions discovered in the brain of patients who had died in epileptic fits, were looked upon as the cause of the disease, when they were in reality the proximate results of the attacks. Thus, an infinite

variety of anatomical alterations of nervous matter has been incorrectly described as being associated with epilepsy, viz., hardening and softening, cancer and tubercle, atrophy and hypertrophy, inflammation and abscess, oedema and disintegration; but it is evidently impossible that so great a variety of pathological lesions should give rise to one and the same complaint. On the other hand, in many cases of true epilepsy, most carefully-made post-mortem examinations have shown the utter absence of any structural lesions in the brain. From the foregoing considerations we are justified in concluding, *that, where structural lesions have been discovered, they have been either due to complications co-existing with, but foreign to, epilepsy itself, or that they have been the proximate results of the epileptic attacks, or that the cases adduced were not such of epilepsy, but of other convulsive diseases; that therefore structural changes are not the actual cause of the complaint, but that epilepsy is a functional disorder, due to certain finer changes in the nutrition of the brain imperceptible to our senses, and which may be rectified by treatment.*

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The treatment of epilepsy, as I understand it, comprises three different objects :—

1st. The suppression of the attacks. Some authors assert that the mere arrest or postponement of a fit is of no benefit to the patient; but I entirely disagree with this opinion. Observation has unmistakeably shown me that every further attack strengthens the epileptic habit, and renders it more difficult to combat, besides which it generally entails great prostration, and exhaustion of nervous power. In order to prevent an attack effectually, we must ever be on the watch for those premonitory symptoms or warnings, (*auræ*), which are present in the majority of cases, and which show us that mischief in the brain is brewing. These warnings vary considerably in their nature. Some patients distinguish between “threateners” and “reminders.” The former, which are more immediately dangerous, consist of spasmodic sensations running upwards from some peripheral part of the body, which, on reaching the head, either cause the patient to fall down in an attack, or merely produce a sensation of great faintness or sickness, which obliges the patient to

be perfectly still for an instant. "Reminders" may be compared to exceedingly slight electric shocks, darting backwards and forwards through the head, and never felt in peripheral parts. They do not generally usher in an attack, but show that nervous matter is in a very unsettled condition, and that an explosion of force, in the form of an attack, may be expected at no very distant time. Other warnings which I have observed previous to attacks, are, more or less prolonged drowsiness, confusion, dizziness, twitchings of the face and jerking of the arms, flushing of the forehead, great wakefulness at night, voracious appetite, beating in the shoulder-blade, great inclination on the part of the patient to hide himself, crawling sensations in the stomach, pain, burning, or tickling about the ears, sudden stoppage of circulation in the hands, which become cold and white, swelling of the lips, and certain delusions, such as the perception of bad smells which do not exist, etc. The last-mentioned symptom I have known to precede a fit by as much as five days. Where such warnings occur, immediate and special action is necessary to prevent an attack from taking place.



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The second object in the treatment of epilepsy is, to induce a total and permanent change in the finer nutrition of the brain and nervous matter generally, so as to restore their proper controlling force to the centres of consciousness and motive power.

Our last, but by no means least important aim should be to render the general health of the patient as satisfactory as possible, and to remove all sources of irritation from mind and body.

Now, these objects are not to be attained in a few days, nor by a single prescription. In epilepsy, as in most other chronic diseases, the treatment has to be chronic likewise, and unless both patient and physician persevere, the result is likely to be disappointing. We all know how tedious the cure of dyspepsia, habitual constipation, gout, and similar affections generally is. It would, in fact, be unphilosophical to expect a very rapid cure of such diseases, as they are almost always the result of minute morbid changes which have been slowly going on in the affected organs for a considerable time, and which cannot be suddenly removed. The same holds good for

epilepsy. Although, in the majority of cases, the most striking manifestations of the disease, viz., the convulsions, may be put down in a comparatively short time, yet the epileptic condition is thereby not immediately eradicated. I have already remarked that, in order to remove this entirely, we must cause a thorough change in the nutrition of the brain, and this can only be effected with time. Most of those patients I have cured, have taken medicines regularly for several months consecutively, and the progress of the cure has always been most steady and satisfactory in those amongst them who took the remedies in a proper and business-like manner. After the attacks have ceased for a longer or shorter time, there is often a trying period for both physician and patient. The latter, rejoicing in his newly-recovered health, is apt to think that his old enemy is gone; that he is equal to any amount of exertion; that he may now compensate himself for the privations previously endured, and may once more begin to thoroughly enjoy life and its pleasures. Unless restrained in such impetuosity by the judgment of the physician, he will often

have to expiate his indiscretion by more or less serious relapses, which might have been avoided if a better regimen had been followed.

And this leads me to another point in the prognosis of epilepsy about which it is necessary to speak, viz., that of confidence of the patient in the physician. No doubt the prognosis of any disease is more favourable if the patient fully relies on the judgment of his medical adviser. If remedies are taken unwillingly and irregularly, if directions are carried out with reluctance, or not at all, if, in fact, the patient believes that his physician "does not understand his case," the result will be a low and desponding state of mind, which must be an impediment to that favourable change in the formation and function of tissue which we are anxious to bring about. But I do not believe that confidence in the physician and his measures, *per se*, is of special importance in the treatment of epilepsy. I mention this subject particularly, because a very eminent French physician, M. Esquirol, has, in my opinion, committed a grave error in this respect.

He says, that at the time he was physician to

La Salpêtrière, where he had large numbers of women afflicted with nervous and mental disorders under his care, he was in the habit of selecting every spring and autumn, thirty epileptics, of whose cases he knew the history, the causes and symptoms, and whom he prepared in advance, by exciting their imagination with repeated promises of cure. He then tried, in one set of cases, bleeding, in another, purgatives, in a third, baths of every possible temperature, and so on with counter-irritants, moxas, the hot iron, antispasmodics, narcotics, and even secret quack medicines. The invariable result of all these therapeutical experiments was, that a new medication suspended the attacks for a fortnight, sometimes even for a month, or three months. But after that time, the attacks reappeared successively in all the patients, and presented entirely the same characteristics as before. Some of these patients he treated for several years in succession; but he did not obtain a single cure amongst them. Nor was he more fortunate in private practice, finding there, as well as in hospital patients, that, if the number of attacks was diminished, this was less

due to the medicines administered than to the confidence which induces the patient to consult a new doctor.

With all due respect for M. Esquirol's acumen, I must say that my experience entirely disagrees with this statement, and that I believe it to be the exception rather than the rule, that the progress of epilepsy is in any way influenced by the mere hope of a cure held out by the physician. In this respect, there is the greatest possible difference between epilepsy and hysteria. I have mentioned elsewhere, how powerfully hysteria and all its symptoms are influenced by strong moral emotions affecting the imagination and the will of the patient; and have shown, how by the agency of faith, by a happy change in the circumstances of life, nay, by the mere statement of the physician that the case was curable, patients have recovered from severe affections which had lasted for years, and resisted every treatment that art had been able to devise.

Such is not the case in epilepsy. This formidable disease cannot be charmed away by the strongest faith; it cannot be improved or cured

by a mere feeling of confidence in the skill of the physician. The epileptic constitution is one of such stubborn obstinacy, that we must look to such medicines by which we can essentially modify and alter the nutrition of the brain and nervous system, as the sheet-anchor in the treatment of the disease.

Time does not allow me to criticise in detail the very peculiar treatment of epilepsy followed by M. Esquirol; suffice it to say, that it must strike every one conversant with the art of medicine, as highly injudicious. I feel, indeed, surprised that, under such circumstances, the patients should have even been temporarily improved. Perhaps this may be explained by assuming that, in some instances at least, mistakes in the diagnosis were made, and those patients who did get better were not real epileptics, but suffered from hysteria and allied disorders.

One of the greatest difficulties I have had to contend with in the treatment of epilepsy, has been the want of devoted and intelligent attendants, ever on the watch for the symptoms preceding an attack. In some instances, indeed, the



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patient is struck down suddenly, without any warning whatever; but in the large majority of cases, there are premonitory signs which announce the impending fit. It is then that the power of preventive medicine must be brought into play without loss of time, so that the convulsive tendency may be checked before breaking forth with all its power. Of course, where the patient's bodily and mental health is satisfactory in the intervals between the attacks, so that he is able to take proper care of himself, we shall, as a rule, have little difficulty, as most epileptics are anxious to recover. It is different in those cases—and they are by far the most numerous—where the patient is so unwell that he is left to the good offices of those who surround him; and there the result of the treatment must depend, in a great measure, upon their assiduity and intelligence. I am happy to say that I have found, in my practice, the brightest examples of untiring zeal, and almost heroic devotion, not for a short time, but for months, and even years, in those whom Providence had entrusted with the care of an epileptic friend or relation; and I can never be

sufficiently grateful to them for the care and perseverance with which they have carried out my instructions, and thus enabled me to vanquish so formidable an enemy. On the other hand, I must confess that I have sometimes been disappointed in this respect, and my endeavours have been frustrated by the neglect and indifference of those who ought to have done better. Anyhow, it is my custom, in commencing the treatment of an epileptic patient, to draw his own attention and that of his friends, emphatically, to the importance of a scrupulous regularity in following up the directions which have been given.

The general circumstances of life have a considerable influence on the prognosis of epilepsy. Those whose means allow them to have everything that is requisite for them, have a better chance of getting well, than those in straitened circumstances. Nevertheless, poverty is not an absolute impediment to the cure. Most of the out-patients at this Infirmary are poor, and yet we continually see striking instances of recovery amongst them. It is, however, different with those who are *very poor*, as due regard to the ordinary rules of hygiene

is of the greatest consequence; and where they are neglected from sheer want or necessity, the prognosis is certainly far less favourable.

Most authors are agreed, that the disease is more difficult to cure where it is hereditary; and I am inclined to coincide in this opinion. I do so, however, more from general considerations about the curability of disease, than from any very precise data at my disposal concerning the epileptic condition. Indeed this is a question difficult to settle by actual observation, as patients in the higher classes are often reluctant to speak on this point, and the poor are generally unacquainted with the health of collateral branches of their family, and in many instances even with that of their nearest relations.

As regards sex and age, I have found that women are more easily cured than men, and the young more easily than the old. I believe that the better prognosis for the female sex is entirely due to the circumstance that women are, as a rule, far more manageable patients than men, and more inclined to follow strictly the behests of the physician, if he has once succeeded in commanding

their confidence. Young patients have, in almost all diseases, better chances of recovery than the aged. Measles, for instance, are far more severe, if occurring in adults, than in children. Yet great age does not absolutely prevent recovery. I hold in my hand the notes of a case of a lady aged 66, who had been epileptic for five years, and had attacks regularly at least once a week, and often even more frequently, but who, after having been under treatment for six months, has been in perfect health for the last eighteen months, and in whom there is every reason to believe that the cure is permanent. You may now see here, amongst the out-patients, an old man, aged 77, who has, in addition to severe epileptic fits, been sorely troubled by gouty pains in his elbows, knees, and feet, and who is now, after a comparatively short treatment, quite free from attacks of epilepsy as well as from his other sufferings.

The prognosis is, as a rule, less favourable in men beyond sixty, who have done hard intellectual work all their life. Structural diseases of the brain are then very apt to follow in the wake of epileptic seizures, and constitute a complication

against which all our efforts may prove unavailing. Fortunately, however, there are exceptions to this rule.

In conclusion, let me say a word on the duration of the disease, so far as this exerts an influence on prognosis. It is stated in most works on the subject, that the resistance to a cure increases with each year, and that the greater the number of attacks, the less is the chance of recovery. Thus M. Herpin says that, if less than a hundred fits have taken place, the prognosis is favourable; where the number is between 100 and 500, it is doubtful; and where it exceeds 500, it is altogether bad. My experience shows these assertions to be incorrect. Epilepsy, even if it has lasted a very long time, is for that reason by no means incurable, although recent cases may certainly be more rapidly cured than such of long standing. A knowledge of the number of fits which have taken place at the time the case comes under treatment, does not seem to give us any certain power of foreseeing the probable result. I have notes of a case which proved exceedingly stubborn, where altogether only six attacks had

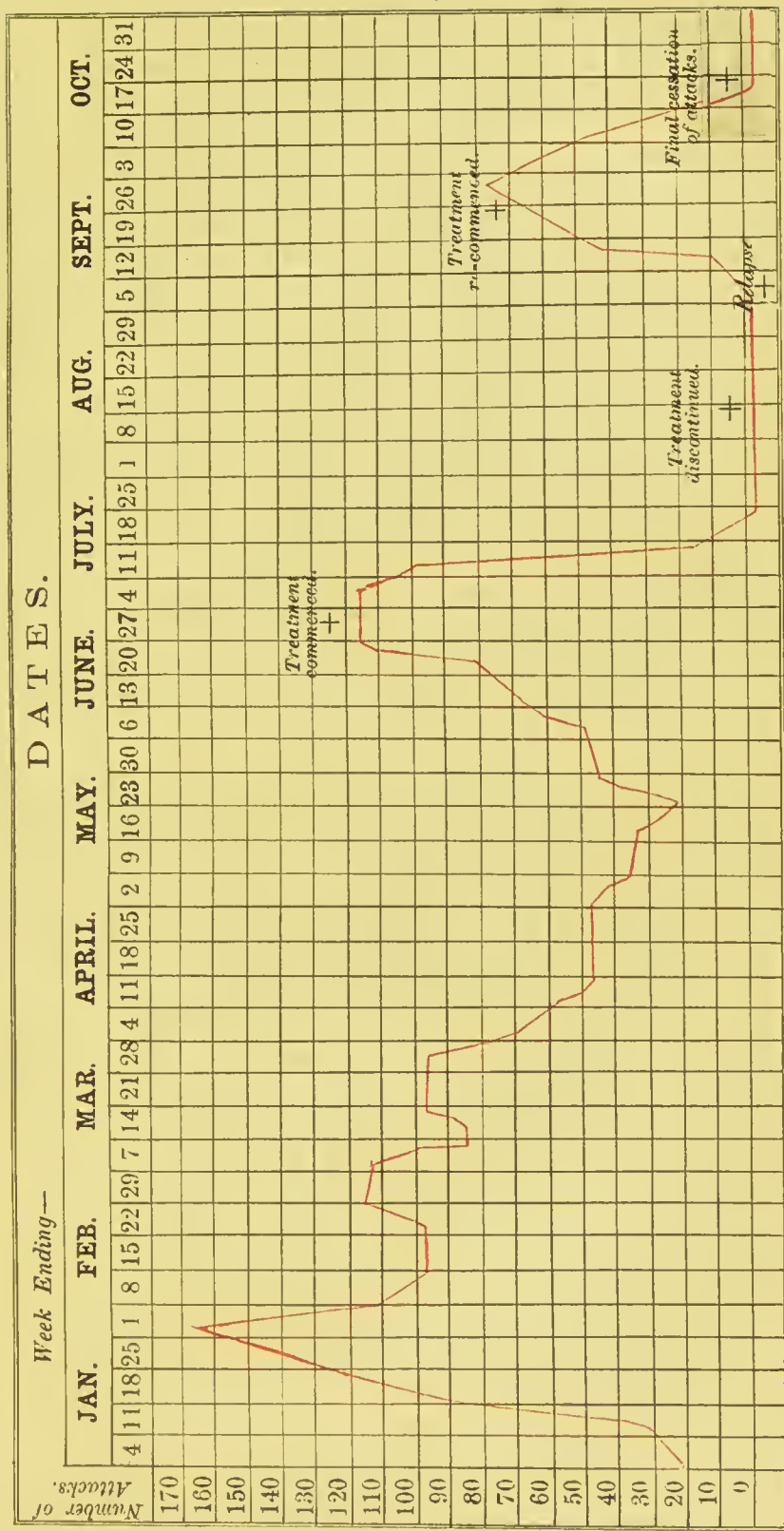
occurred when the patient placed himself under my care; and again, I have met with others which yielded rapidly to treatment, although thousands of attacks had occurred in the course of years. One patient of this latter kind, who was sent to me from Paris, by Dr. Marion Sims, in July, 1864, had, for about six years, suffered from the disorder. She had had as many as 165 attacks in one week, and no less than 3,603 in the year before she came under my care.\* The patient had altogether undergone more than 10,000 attacks; yet in this case of almost unexampled severity, I succeeded, in a single week, in reducing the number of seizures from 109 to 6, and the week after that the patient had no more. After having been about a month longer under treatment, during which she was quite without attacks, she went into the country, where she remained free from her malady for another month. A relapse then took place. One day, two severe attacks with prolonged loss of consciousness occurred quite suddenly, and were followed by many others during the next few days. Seeing

\* See Diagram.



# DIAGRAM,

*Showing the Weekly Number of Epileptic Attacks between January 4th and October 6th, 1864, which occurred in a patient under the Author's care, who had altogether suffered for six years from the disorder. The treatment commenced on June 26th, 1864, and within ten days the attacks were put down, the last occurring on July 5th. The treatment was discontinued on August 6th. After a free interval of 58 days, a relapse took place (September 3rd), and the attacks soon resumed their usual course. The second course of treatment commenced on September 18th: within 18 days the attacks were put down, and then finally ceased. The treatment was discontinued (for good) in August, 1865, and the patient is now (September, 1866), in perfect health.*





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that she did not get better, the patient, a short time afterwards, returned to town and placed herself again under my care. After eighteen days the attacks finally ceased. She then remained a sufficient time in London to enable me to root out the epileptic habit; and she has never had any return of the disease. The successful issue of this case—perhaps the most severe on record in the annals of medical science—well illustrates the truth of my proposition:—that epilepsy, even in its worst forms, is a curable disease.

The case just related was cured chiefly by a systematic and persevering use of the tincture of henbane, than which there is no remedy more useful for the suppression of epileptic auræ and attacks. This tincture, if properly prepared and judiciously administered, often produces marvellous results in the treatment of epilepsy; but it must be given in far larger quantities than those usually prescribed, for in many cases only half-ounce doses, frequently repeated, produce the desired effect. Such doses, however, should be avoided in young children,

where they might produce great depression, and in the aged, where they might interfere with the action of the bladder.

For modifying the nutrition of the brain and nervous matter generally, I employ mineral, vegetable, and dynamic sedatives, and nerve-tonics. The value of the *minerals* ranks in the following order :—Bromide of potassium, nitrate of silver, sulphate of zinc, and phosphorus. Amongst the *vegetable* remedies, belladonna and conium are the most important. The ordinary mode of using these drugs, where they are given in such doses as to produce their full physiological effects in a short time, I believe to be utterly useless, and even hurtful for the majority of cases: In order to be beneficial, these remedies must be given in small and only very gradually increased doses, and continued for a considerable length of time.

The *dynamic* sedative I employ, is the continuous galvanic current, such as produced by five or ten cells of Daniell's battery, charged without acid. This remedy is not required in every case, but in some it is indispensable. The immediate sedative action of the continuous current is

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often very striking, and always pleasant to the patient, especially as the low tension of the electricity used, renders its application entirely painless.

For improving the general health of epileptics, iron, cod-liver oil, and baths are often necessary. Amongst the distant sources of irritation which may be present, the most frequent are uterine disturbances in females, and phimosis in males ; for the removal of which the usual surgical treatment of these disorders should be resorted to.





II.

ON THE PATHOLOGY AND TREATMENT  
OF HYSTERIA.



GENTLEMEN,

Hysteria is a disease which has been known from the commencement of civilisation, and was so called by the physicians in Ancient Greece, who believed it to arise from the freaks and vagaries of a dissatisfied and ill-tempered uterus (*ὑστέρα*). Plato and his followers described this organ as an animal endowed with spontaneous sensation and motion, lodged in another being, and ardently desirous of procreating children. If (argued these philosophers), it remained sterile long after puberty, it became indignant at its unnatural condition, travelled through the whole system, arrested respiration, and threw the body into extreme danger, until it became pregnant, whereby its wrath was appeased, and it behaved well ever afterwards.

Pressure of the uterus upon the various organs of the body was considered to be the mainspring of all the sufferings of hysterical patients. Where there was a feeling of suffocation, it was due to the

uterus compressing the throat and the bronchial tubes ; coma and lethargy in hysterical women proceeded from the womb squeezing the blood-vessels travelling towards the brain ; palpitations arose from the uterus worrying the heart ; and if there were a feeling of pain and constriction in the epigastrium, it was again the womb engaged in a relentless attack on the liver. Even so recent a writer as M. Landouzy has endeavoured to prove that the sick or dissatisfied uterus is the only source of hysteria.

A more accurate observation of facts, and a less prejudiced interpretation of the same, has gradually led us to different views on this subject. The credit of having upset the uterine theory of hysteria, belongs chiefly to M. Briquet, the able and zealous physician to La Charité, who was the first to apply the numerical method to this branch of pathological inquiry, whilst at the same time carefully guarding against the dangers which beset the path of statistical investigation. Romberg, the Nestor of German pathologists, first directed attention to the fact that reflex excitability is largely increased in hysteria ; but he did

not lay sufficient stress on the emotional character of the disease.

And yet it is this emotional character which serves to explain, not only the infinite variety of symptoms, but also the causation and progress of hysteria. As regards the symptoms, we find that their multitude and apparent incongruity have perplexed and bewildered those observers who were without this clue to the comprehension of their nature. Rivière called hysteria not a simple but a thousandfold disease. Sydenham asserted that the forms of Proteus and the colours of the chameleon were not more various than the divers aspects under which hysteria presented itself; and Hofmann said that hysteria was not a disease, but a host of diseases. Yet all the symptoms, such as convulsive attacks, fainting fits, pain, cough, difficulty of deglutition, vomiting, borborygmi, asthma, hiccough, palpitations of the heart, tenesmus of the bladder, general and partial loss of power, catelepsy, coma, delirium, etc., flow from the same source; and may be classified as functional spasms and paralysis, anæsthesia and hyperæsthesia, resulting from painful impressions,

whether mental or physical, which act on the emotional portion of the encephalon.

Being guided by this fundamental principle, we find the transition from physiological to pathological manifestations easy and natural. All symptoms of hysteria have their prototype in those vital actions by which grief, terror, disappointment, and other painful emotions and affections, are manifested under ordinary circumstances, and which become signs of hysteria as soon as they attain a certain degree of intensity.

Take, for instance, the case of an impressionable woman, one who does not belong to the class of the strong-minded, and who has not, by long and laborious training, acquired that perfect control over herself and her demeanour, which is now considered part of a young lady's education; or one, who may be possessed of perfect self-control when in good health, yet may have lost it to a great extent when debilitated by disease or anxiety. Tell this woman suddenly that the house is on fire, or that she has lost a near relative, and you may be sure to observe some of



or all the following symptoms. She perceives a feeling of constriction in the epigastrium, oppression on the chest, and palpitations of the heart; a lump seems to rise in her throat and gives a feeling of suffocation; she loses the power over her legs, so that she is for the moment unable to move; and she wrings the hands in a spasmodic manner. Let these symptoms increase in degree of intensity, and you have the well known signs of hysteria, which I have just classified under the four heads of functional spasm and paralysis, anæsthesia and hyperæsthesia, and which result from painful impressions being transmitted to the emotional part of the brain.

I now go a step further to show in what class of persons we may expect hysteria to be principally developed. Every day's experience will show that, while there are girls and women in whom the most trifling cause gives rise to spasms and convulsive attacks, we meet, on the other hand, with not a few who have, during the greater part of their lives, been subjected to influences tending to produce hysteria, but who have yet never shown any signs of it. This fact

has always been so apparent, that all observers are agreed about it; but the nature of the peculiar constitution predisposing to hysteria has to this day been a matter of controversy. Hippocrates said that women who had an abundance of seminal fluid, and who suffered from leucorrhœa—that is, the lymphatic and the pale—were predisposed to become hysterical; while Galen held that the strong, the fleshy, the sanguine women, had a greater tendency to it. Subsequent writers have sided, sometimes with Hippocrates, sometimes with Galen, but mostly with the latter. The truth is, that there is no such thing as a peculiar constitution of the body predisposing to hysteria, since the disease indiscriminately invades women of all kinds of physical constitution. Nor has the intellect anything to do with it; for some hysterical women are very clever, while others are the reverse. It is rather the mental constitution which exercises an all-powerful influence in the production of this disease.

Women whose sensibility is blunt, never become hysterical; while those who are readily accessible to impressions coming from without,

who feel acutely and are liable to strong emotions, are certain to become hysterical if made to suffer mental agony or prolonged physical pain. This high degree of sensibility is not confined to any particular rank of society; but may be found equally strong amongst the lower orders as with the upper ten thousand. For this reason, hysteria may occur, and actually does occur, in women of all ranks and orders. It is frequent in the higher classes of society, in ladies who lead an artificial life, who do nothing, whose every wish or whim is often gratified as soon as formed, and who are very apt to go into hysterics at the slightest provocation or contrariety. For them, real honest work, the pursuance of an object in life, such as the education of children or some charitable undertaking, is often the best cure. Again, we find plenty of irritable and impressionable women in the lower classes; and as want, grief, and anxiety, are common amongst them, they are very prone to hysteria. Such women are often cured by an improvement in their social position.

As emotion and anxiety on the one hand, and highly impressionable women on the other hand,

are found in all inhabited quarters of the globe, hysteria is not confined to any particular climate or country. The common belief is that this disorder is more frequent in tropical than in temperate or cold climates. But such is not the case. We find hysteria not only in the South, but in the highest latitudes. The Russian ladies are particularly hysterical. The same is the case with the Swedish, Polish, and Swiss; and hysterical women are even found amongst the Esquimaux and Greenlanders, and in Iceland. On the other hand, there is no doubt that the circumstance whether women live in towns or in the country, is of considerable influence in the production of the disease. Although hysteria does occur amongst rustics, yet it is far more frequent in large towns, where everything tends to debilitate the nervous system, and where the struggle of life, and consequently painful emotions, are more intense than elsewhere.

The same considerations serve to explain the influence of sex in the production of hysteria. Those observers who believed the sick or dissatisfied uterus to be at the bottom of all the mischief,

were obliged to maintain that hysteria occurred only in women. And it is certainly infinitely more frequent in women than in our sex, although not on account of the uterus, but by reason of the higher degree of sensibility possessed by women. Yet it does occur in males as well as in females, if they are highly sensitive and subject to painful emotions.

As cases of hysteria in male patients are rare, I will give you the particulars of a case in point, which occurred some time ago in my practice.

In October, 1861, I was called to see a young Frenchman recently arrived in London, who I was informed, "was in a fit." On arriving at his residence, I found the patient just recovered from a severe convulsion, and in a violent paroxysm of crying and sobbing, complaining of a very bad headache and pains all over the body. He told me after a while that, having gone that day to a banker's to cash a cheque, he was, on his way home, robbed of his money; and that he now found himself without a farthing. He discovered his loss on arriving at home; and after having well assured himself that the money was actually

gone, he felt giddy, had the sensation of a lump rising from the stomach to the throat, fell down, and was seized with convulsions. He did not quite lose his consciousness, but felt all the time as in a trance. The convulsions lasted more than twenty minutes, after which the crying and sobbing commenced. He said he was ashamed of it, but he could not help it. He had on several previous occasions been seized by a convulsive attack, after having had some contrariety or annoyance, but never otherwise. He generally felt ill for twenty-four hours afterwards, and then recovered. He was, however, habitually subject to neuralgia in the left arm, and to a sensation of numbness in the left hand and fingers. He frequently suffered from headaches, pain in the stomach, indigestion, and flatulence. I ordered him some brandy and water, and a dose of quinine and morphine at bedtime. He called upon me the following morning, looking a little pale, but otherwise well; and I have not seen him since.

Now, the only convulsive disease with which this affection could have been confounded is



epilepsy; but the circumstance that the attacks in this case only came after painful emotions, together with the feeling of the lump in the stomach and throat, the crying and sobbing after the attack, and finally the long duration of the convulsions, distinguish it sufficiently well from epilepsy.

The common belief is, that hysteria does not occur in childhood and advanced age; but this is erroneous, for amongst 820 well-marked cases of hysteria which I have collected from medical literature, there were 71 patients under ten years, and 28 over the age of forty-five. Hysteria is, therefore, not confined to the period of puberty, as the advocates of the uterine theory would have it. During childhood, the female sexual organs are in a state of perfect repose, and do not give rise to sufferings; but nervous sensibility is high, and reason still dormant; so that, if painful emotions be frequently repeated or be unusually powerful, we have all the necessary conditions for the development of hysteria. In accordance with this view, we find that, when children are hysterical, the cause is almost always maltreat-



ment by the parents (especially stepmothers) or nurses, and excessive sensibility inherited from the parents.

In September, 1860, I was consulted about an intelligent-looking girl, aged 7, "who had fits." The mother showed many signs of hysteria, and said that she had had a fright when pregnant with this child. The little patient had always been delicate, nervous, and sensitive—prone to crying at the slightest provocation. She had her first convulsive attack when five years of age, and it occurred after having been scolded by the nurse. From that time she had well-marked hysterical attacks at least once a week. Moreover, she was liable to headaches, globus, pain in the epigastrium, vomiting after the most trifling fault in the diet, and a great deal of flatulence. There was considerable numbness on the whole left side of the body. I ordered the child to be removed to the seaside, and prescribed full doses of the bromide of potassium, together with wine, cod-liver oil, and a general tonic regimen. After three months, her health was very much improved; and she had altogether only seven attacks more,

the last occurring in 1863. In May, 1865, she first menstruated; and since then she has been almost well, although even now the hysterical condition is not quite removed. Headache and the peculiar hysterical pain in the epigastrium are apt to occur after painful emotions; and globus and palpitations of the heart, although rare, have yet not entirely ceased to trouble her.

Between fifteen and twenty years of age, hysteria is most frequent, in consequence of the radical change which the nervous system undergoes during that period. Within those years girls begin, as it were, a new existence; they leave the nursery and its habits, and, imagination reigning supreme, they enter upon the world, with its passions, troubles, and disappointments; and, if painful emotions be frequently and powerfully experienced, hysteria is the inevitable result, provided the system is predisposed for it. After twenty, the disease becomes much more rare—a circumstance which cannot possibly be explained by the uterine theory; for at no other age are the female sexual organs subject to more considerable

disturbances than after that time of life. The condition of the nervous centres, however, gives us a satisfactory clue to this circumstance. As imagination gives way to a more matter-of-fact view of life and the world, illusions vanish, and impressions and sensations are kept more under control than previously. As age advances, hysteria continues to become more rare, because the mind has become settled and critical, and less accessible to sudden impressions and emotions.

Hysteria is almost always a chronic disease, the symptoms of which are developed in a very regular manner. At first the complexion becomes pale and sallow, the skin dry and hard, the patient loses flesh, and often complains of headache. The appetite is fanciful and feeble; some patients having great dislike to anything but water, vinegar, and confectionery. Biliary secretion is tardy, and constipation habitual. Many hysterical women only go to stool once or twice a week, and in exceptional cases constipation may last even for a fortnight or three weeks. There is generally a large accumulation of gas in the intestines, giving rise to colics or borborygmi.

Pain in the epigastrium, which is very tender to touch, is much complained of; it is worse after emotions or walking, but not after meals. Moreover, there is almost always pain at the level of the middle part of the left false ribs, and which the patients generally describe as pain in the heart. Pain at the left side of the spine, near the transverse processes of the vertebræ, is also a very constant symptom. Abdominal pulsation is frequent, and menstruation generally troublesome. The blood is often impoverished, the pulse being quick, small, and feeble. There is always excessive nervous excitability in these patients. The smallest contrarieties of daily life which have scarcely any effect on other people, are sufficient to upset them. A trifling variation in the day's temperature, a shower of rain, a change in the wind, a somewhat prolonged walk, and any little disappointments, are sufficient to make them thoroughly miserable. The mental condition of these patients thus becomes, after a time, considerably perverted. They feel depressed and low-spirited; they find it difficult to fix their attention on any subject; they cannot read a

serious book; their conversation becomes disconnected, their judgment incorrect, their character versatile and capricious. They are immoderately fond of sensational novels, of concerts, balls, and theatres, and neglect the graver duties of life. Yet, with all this, they are singularly free from hypochondriasis. It is true that they complain much of symptoms, but they do not trouble themselves and others with speculations about the nature or probable termination of their case.

Convulsive attacks are of frequent occurrence in hysterical women, and are often confounded with epileptic seizures, a mistake which must be carefully guarded against. I will therefore give, as concisely as possible, the points of difference between the two kinds of fits, and which will always enable us to make a correct diagnosis.

Hysterical attacks occur almost always after painful emotions, maltreatment of children by their parents, or of wives by their husbands, terror on seeing some disgusting object or witnessing a convulsive attack, fright, or a sudden suppression of the menstrual flow, etc.; while epileptic attacks almost always come on without any appreciable

cause. The starting-point of the hysterical attack is generally in the epigastrium; while the epileptic attack occurs either without any warning, or with an aura of a different kind, which mostly starts from the limbs. In the hysterical attack, the loss of consciousness is preceded by globus and a feeling of suffocation; in the epileptic attack it is sudden. The epileptic patient falls down as if struck by lightning, no matter where he may be; the hysterical patient has almost always the time to find a suitable place (a bed or sofa) upon which to fall. The epileptic convulsion is a sort of tetanus which does not resemble physiological movements, and scarcely ever lasts more than five or ten minutes; the hysterical convulsions always mimic physiological movements, and last at least fifteen minutes, and often very much longer. At the end of the epileptic attack, the patient falls into a deep coma, or he recovers consciousness at once, and feels shaken and exhausted; at the end of the hysterical attack, there is generally a fit of crying and sobbing. Finally, we observe that, after the hysterical attack, urine of a peculiar character is passed, which is not the case after the epileptic



attack. The chief peculiarity of the urine after the hysterical attack is its great abundance, as it may amount to a pint or even more at one time. This urine is clear and devoid of colour, almost inodorous and tasteless; it has a specific gravity of very little over 1000, and consists of scarcely anything but urinary water. The cause of the large increase of the urinary water is a spasm of the capillary vessels of the skin, which consequently contain less blood than usual, and therefore throw additional work on the kidneys.

Acute hysteria is far more rare than the chronic form of the disorder, and is only developed if some very powerful cause acts upon a system already predisposed to the disease. It is generally ushered in by one or several convulsive attacks, which are followed by delirium, profound and extensive anæsthesia, paralysis, and febrile symptoms. There is violent headache, dry tongue, thirst, loss of appetite, a feeling of great lassitude, a pulse of above 100 beats, and a temperature of  $100^{\circ}$  to  $102^{\circ}$ . Diagnosis is sometimes difficult in these cases, which are not unfrequently confounded with typhoid fever or meningitis. They are



distinguished from other acute affections chiefly by their long duration, for they often last from four to six months; and the patients almost always recover.

The progress of hysteria is powerfully influenced by the events of life. If these be happy, the prognosis is, generally speaking, favourable; if the reverse, the disease may continue unabated to an advanced period of existence. The duration of hysteria is, therefore, very variable; but, on the whole, it must be admitted that it is much longer than is commonly believed. Hysteria is a disease of the whole system, the symptoms of which may be very readily relieved, but the actual cure of which is most difficult, as it depends, to a very great extent, upon circumstances over which the physician has no control. In order to say that an hysterical woman has really been cured, we must observe her for four or five years after the cessation of the symptoms.

The prognosis of hysteria is, therefore, not nearly so favourable as is generally believed. It is true that we possess effectual remedies for nearly every symptom of hysteria, and that the disease

is not dangerous to life. Yet, on the other hand, we find that many patients only get well as age advances and sensibility becomes blunted; while others do not recover at all, or are troubled throughout life by the consequences of the malady. During the best years of their existence, they are worried with pain or convulsions, loss of voice or paralysis, unable to fulfil the duties which Providence has imposed upon them, and a burden to themselves and others.

Strong moral emotions, affecting the will and the imagination of the patients in a powerful manner, may cure hysteria temporarily or permanently, especially if they be of a sublime and exalting character. And here let me say a few words on those apparently miraculous cures, wrought by the agency of Faith, which are disbelieved by many physicians, and which nevertheless are as real as any cures obtained by other more tangible remedial agents. Many cases of this kind have been recorded by French physicians, whose evidence is quite convincing. Amongst ourselves, Sir Benjamin Brodie has related the case of a patient affected with severe arthralgia,

who had been in bed for several years, but who, at the command of her spiritual adviser in the name of our Saviour, to get up and walk, actually did it. A striking instance of the same sort occurred in 1844 at Treves, in Germany, where a lady of high rank, who had been completely paralysed for a number of years, was carried to the cathedral, where the bishop had caused a sacred relic to be exhibited, at the sight of which she immediately regained the use of her limbs.

Partial or complete *loss of muscular power* is a frequent manifestation of hysteria, and invades with preference the left side of the body. *Hysterical hemiplegia* is by no means rare, and occurs either suddenly, after painful emotions and hysterical attacks, or it creeps on gradually and unawares. It differs from hemiplegia, due to cerebral disease, by the following points:—There is no distortion of the face, nor a deviation of the tongue from the median line. The paralysis is scarcely ever complete, and in the large majority of cases, more severe in the leg than in the arm. Moreover, it is subject to considerable and sudden variations under the influence of

emotions or treatment. A woman affected with hysterical hemiplegia may, under the stimulus of great excitement, get out of bed, walk several miles, and perform other feats of power; and may then, after the excitement has subsided, relapse into complete immobility. No such thing is possible in a case of hemiplegia from intraeranian disease. Moreover, in the hysterical affection there is generally great weakness of sight, loss of hearing, and of the sense of taste on the same side, and partial or complete anæsthesia of the skin; but no rigidity of museles. If an interrupted electric current is applied to the muscles, they contract well enough, but the patients do not feel the passage of the current, unless this be one of great power. It is only in cases of very long standing that the electric contractility of the museles appears diminished. Hysterical hemiplegia is often accompanied by retention of urine, pain in the head, and numbness. Sometimes there are sensations as of pins and needles in the paralysed parts; and, at the commencement, there may be febrile symptoms, with sleeplessness, and great disturbance of the

digestive function. I have seen a case, in consultation with Dr. Todd, where the affection wandered about the body in a very remarkable manner. At first there was left hemiplegia; after a few months the left side recovered, and the right was affected; the hemiplegia then gradually became changed into paraplegia, and this into paralysis of the left hand. At one time, the only paralysed part was the forefinger of the left hand. There was no attempt at malingering in this case, the lady being very anxious to get well, as she was engaged to be married.

*Hysteria paraplegia* is sometimes confounded with paraplegia from myelitis and other diseases of the spinal cord or its appendages. Such a mistake must be carefully avoided, as the prognosis and treatment are entirely different in the two affections. The chief points of difference between them are the following:—The commencement of hysterical paraplegia is always accompanied by severe headache, showing the part played by the brain in the causation of the complaint. Moreover, there is, in the commencement, neither tremor during rest, nor spasms

in walking, as is the case in myelitis. In hysterical paraplegia the lower extremities are feeble, the knees give way under the weight of the body, and the feet drag on the ground. The paralysis is very seldom complete, for the patient is generally able to move the legs well enough when in bed, and may even get out of bed with a certain amount of ease; but after walking two or three steps, the limbs give way, the gait becomes tottering, and unless supported, the patient falls down. Concomitant symptoms are anæsthesia of the skin and the muscles of the lower extremities, tympanites, constipation, dysmenorrhœa, and retention of urine. The bladder should never be lost sight of in these cases, and should be emptied by the catheter if necessary. Paralysis of the muscular fibres of that organ is often accompanied by anæsthesia of the mucous membrane, so that the patients do not feel the want of passing the water, nor the introduction of a catheter, nor the passage of an electric current. Considerable distension and even rupture of the bladder may therefore be the consequence of neglecting to inquire into this condition.



By far the most common form of hysterical paralysis, however, is that which affects the vocal cord and the muscles of the larynx, and is known as *hysterical aphonia*. It almost always appears suddenly, after some violent emotion, or after taking cold; and it may last only an hour or two, or be protracted for years. It is not difficult to distinguish this kind of aphonia from that which is due to laryngitis and other structural diseases of the larynx, such as induration, thickening, œdema, ulceration, or growths and tumours; for we now possess in the laryngoscope an instrument which has wonderfully facilitated the diagnosis of diseases of the larynx. In hysterical aphonia the laryngoscope shows a total absence of any structural lesion, the vocal cords being merely flaccid and incapable of movement. Moreover, this affection is seldom accompanied with cough, as is laryngitis; and the sudden loss of voice is also a characteristic feature, as in almost all other forms of aphonia the voice becomes only gradually extinct. In this affection the prognosis is more favourable than in any other form of hysterical paralysis. I have frequently restored the voice



in such cases by a single application of galvanism.

In May, 1862, I treated an interesting case of this kind, together with Professor Czermak, who had just then introduced the laryngoscope into this country. It was the case of a patient, aged 30, who had lost her voice two months before, in consequence of a great emotion. An examination of her throat showed that both vocal cords were perfectly motionless, and that a large cleft existed between them. After two applications of galvanism, the patient could speak again, although still in a hoarse tone only. It was then discovered, by another examination with the laryngoscope, that the right vocal cord had to a great extent recovered, and approached the median line when the patient endeavoured to pronounce a prolonged "ah," but there was as yet no improvement in the left. This is an interesting physiological fact showing that the normal state of one vocal cord is sufficient for the production of certain vocal sounds. By further treatment, the left vocal cord was also restored to its normal condition, and the patient entirely recovered.

I will now say a few words about the more rare forms of paralysis observed in hysterical women.

Paralysis of the *portio dura* is occasionally seen to accompany hysterical hemiplegia, and is always connected with anæsthesia of the skin and of the special senses of the same side, whereby it may be distinguished from the ordinary form of facial palsy. We sometimes also observe hysterical paralysis of the muscles of the *pharynx* and *œsophagus*, and consequent difficulty or impossibility of deglutition; and hysterical paralysis of the *rectum*, which is mostly accompanied by anæsthesia of the mucous membrane of that portion of the bowel, and entails involuntary fecal discharges. The power of the *diaphragm* may also be impaired. After bad hysterical attacks, the patient, at intervals, gasps for breath, and dyspnœa may be severe. The accessory muscles of inspiration, more especially the *scaleni*, work hard; but the *epigastrium* and the base of the *thorax* do not project during inspiration, which indicates a semi-paralytic condition of the *diaphragm*. The *centre of circulation* may suffer in the same manner. Many hysterical women

have always a small and feeble pulse; after attacks it is sometimes altogether absent, and even auscultation may fail to discover the sounds of the heart. In most instances, this condition is only temporary; but there are cases on record where hysterical women have suddenly dropped down dead after a great shock; and there the cause of death was most likely sudden paralysis of the heart. Such, however, is a very rare termination of the disease.

The commencement and progress of all the different forms of hysterical paralysis, leave no doubt on the mind that this is a functional disorder, and in no way connected with structural lesions in the nervous centres, the peripheral nerves, or the muscles. Affections which come on so suddenly, which may vary in degree from day to day, and are sometimes cured by a single application of galvanism, cannot be due to organic lesions of important organs, but are produced under the influence of mental emotions, and chiefly determined by them in their further progress. In accordance with this view we find that in cases which have ended fatally, the most careful post-

mortem examinations have failed to show any structural lesions to which the affection might have been fairly traced.

I have already mentioned how we may distinguish hysterical hemiplegia, paraplegia, and aphonia, from the like-named affections which are caused by actual organic changes. I will now say a few words on the distinction of hysterical paralysis from palsy produced by lead-poisoning, from rheumatic paralysis, and general paralysis.

Paralysis which is the consequence of *lead-poisoning*, always affects certain sets of muscles, leaving others nearly or totally intact. The arms are more frequently paralysed than the legs; and the extensors more than the flexors. The muscles which chiefly suffer are the extensor communis digitorum, the extensors of the fore-finger and of the little finger, the extensors of the wrist, the triceps and deltoid, and the muscles of the ball of the thumb. In cases of this kind the electric excitability of the muscles is always very much diminished, and often entirely lost; not only where atrophy has been the consequence of the lead-poisoning, but also where the bulk of the

muscles is only slightly diminished. The localisation of lead-palsy, and the diminished contractility of the muscles, observed in that disease, is quite sufficient to distinguish it from hysterical paralysis.

*Rheumatic paralysis* differs from hysterical paralysis by arising from a different cause, and by occurring mostly in men. It is generally produced by the prolonged action of wet and cold, and has nothing to do with painful emotions. The angler, the huntsman, and others who by pleasure or necessity are much exposed to the changes of temperature, are liable to this kind of palsy, which affects with preference the muscles of the lower extremity, but may also invade the shoulder and the hand. It is always accompanied, at first, by pain, and afterwards by numbness, and is easily cured by Faradisation.

From *general paralysis* hysterical palsy may be distinguished by the former being always accompanied with an impediment in the speech, impaired intellect, and tremor in the muscles, which after a time become completely atrophied.

Hysteria rarely ends in death or perfect recovery.

Even where the symptoms appear most alarming; a fatal result is the greatest exception; and on the other hand we must expect that even where the patient is apparently quite recovered, a recurrence of the causes of the disease may bring on a relapse. The longer the complaint has lasted, the more unfavourable is the prognosis as regards perfect recovery. When death takes place in an hysterical patient, it is mostly due to some intercurrent disease which has no connection with hysteria itself, such as cancer, tuberculosis, ovarian dropsy, cirrhosis of the liver, etc. .

Medical men and others often think that if an hysterical girl were only to marry, she would recover; but I have no doubt that the curative influence of marriage in hysteria has been greatly exaggerated. The mere fact that a great many married women are hysterical, shows the fallacy of the opinion that marriage is always a cure for hysteria. Nay, even in a large number of cases, hysteria is only developed after marriage, and is then consequent upon maltreatment of the wife by her husband, or upon financial embarrassments, which are generally more severely felt by married



people than by others, or upon the illness and loss of children, etc. All these circumstances have to be taken into consideration before we can feel justified in recommending an hysterical girl to marry. At the same time, we must not forget that hysterical wives are anything but a source of comfort to their husbands, that there is great tendency to miscarriage in hysterical women, that their children are often still-born, and that if they live, they are generally delicate and sickly, and liable to inherit hysteria and other nervous affections. Marriage acts beneficially chiefly in such cases where the circumstances of the patient at home are highly unfavourable, and where in consequence of marriage she is rid of all anxiety, embarrassments, and painful emotions.

The *treatment of hysteria* is more difficult than that of any other disease, and demands all the resources of the art and all the individual skill of the physician. It may be considered under three different heads.

1. We must endeavour to remove the *causes* which we know to produce hysteria; viz., painful emotions.



2. We must modify the *constitution* and

3. We must relieve *symptoms*.

As regards the first point, we often find all our efforts unavailing; yet we must never despair of success. We must try to rouse the will of the patient, to reconcile her to her position in life, and obtain for her the best possible conditions from those who surround her. Thus, even in apparently desperate cases, the physician may, by tact and perspicuity, yet to a certain extent be successful. Sometimes a total change of air and scene, a voyage to the Cape or Australia, does wonders.

Our second object must be to modify the constitution of the patient. If this be thoroughly wrong, we may hope for the best; while in cases where it does not seem to offer any irregularities, much less can be accomplished. Those hysterical patients whose constitution is at fault may be divided into three classes; viz., the anæmic, the plethoric, and the purely nervous.

In the *anæmic*, the restorative treatment must be pursued. We must make the patients eat, which it is often most difficult to do; recommending plain and nutritious fare, such as milk,

Liebig's meat-extract (prepared with barley-water and a little brandy), chocolate, eggs, poultry, and joints. A liberal allowance of wine is often very useful; while we must prohibit water, for which most patients of this class have an inordinate craving, and which almost invariably disagrees with the stomach. Amongst the preparations of iron, the best for these cases is the reduced iron of the *British Pharmacopœia*, in doses of one or two grains, two or three times a day, with meals. A cold sponging-bath in the morning is also of great service. Where there is much emaciation, cod-liver oil, or the pancreatic emulsion may be given. Where the patient's means allow a journey abroad, the chalybeate waters of the continent, especially those of Spa, Schwalbach, Pyrmont, and St. Moritz, are admirable remedies. The best amongst them for these cases I believe to be those of St. Moritz, in the Engadin, where the highly rarefied Alpine air, the carbonated baths, and the chalybeate mineral springs combined often produce marvellous results. St. Moritz is the highest inhabited valley in Europe, being more than 5,000 feet above the level of the sea.

For the *plethoric*, the treatment has to be quite different. In these, a bland diet, long-continued warm baths, saline remedies, and occasionally local abstractions of blood, must be prescribed.

For the *purely nervous*, the antispasmodic remedies are suitable. Assafoetida, valerian (given as the valerianate of zinc), musk, and castor, take their proper place in these cases. All these remedies have lately fallen much into disuse, because they were indiscriminately employed for all forms of hysteria, and therefore often failed to do good; but if their use be restricted to the class of patients just alluded to, I have no doubt that we shall be well satisfied with their effects.

In all cases of hysteria, we must take care that the ordinary functions of life, especially menstruation and alimentation, should be in proper order. Complications with tumours, chronic metritis, displacement of the womb, foreign bodies (such as intestinal worms), or an accumulation of fæces, must be treated according to general rules.

For the relief of hysterical *symptoms*, I know no more useful remedy than Faradisation, by which nearly all manifestations of hysteria may be ar-

rested, and either temporarily or permanently cured. The effects of this agent may be easily understood, if we consider that hysteria is a functional, not a structural disease, and that its symptoms are, generally speaking, nothing but simple modifications of sensibility and contractility. By Faradisation, we may act powerfully on the organs of sensibility and contractility without injuring them, whatever may be the part of the body upon which we may desire to act, and whatever may be the degree of intensity it may be found necessary to use.

According to the nature of the symptom we intend to combat, the mode of application must be different. Hysterical hyperæsthesia is generally cured by two or three applications of a wire-brush, conveying a powerful current to the skin, for two or three minutes each time. This procedure is painful, and it may therefore be advisable, in women who are very sensitive, to place them previously under the influence of chloroform, or to inject morphia subcutaneously, or to apply the ether-spray, which takes nothing away from the revulsive effects of Faradisation. For hysterical

anæsthesia, the proceeding is the same, only it must be continued for ten or fifteen minutes. In such cases, no inconvenience attaches to the use of Faradisation, because as soon as the patient begins to feel pain, the anæsthesia is dispelled, and the operation may be discontinued.

For anæsthesia of the nerves of special sense, the continuous galvanic current is preferable to Faradisation; but the latter is again more useful in anæsthesia of the mucous membrane of the bladder, vagina, and rectum.

In hysterical attacks, I prefer a drenching with cold water in hospital, and an emetic in private practice. Where they occur frequently, bromide of potassium should be given. Faradisation is again useful in globus, spasmodic cough, and dysphagia.

If hysterical paralysis is accompanied by acute symptoms, the patient must first be treated according to general rules. Faradisation can only be safely employed after the acute stage has subsided, when it often proves curative. In these cases, it ranks in value immediately after those sublime and elevating emotions, of the curative

influence of which I have already spoken. Partial paralysis is always more easily curable than the general form. In the latter, the continuous current should be used. Hysterical paraplegia is sometimes obstinate; while hemiplegia, aphonia, and paralysis of the muscles of the pharynx, are often rapidly cured by Faradisation.

I conclude with giving you the particulars of a case of general hysterical paralysis with anæsthesia, which came under my care in October, 1864, and completely recovered under the use of the continuous galvanic current. It was the case of a girl, aged 19, who became an out-patient at the Samaritan Free Hospital in September of that year, and was sent to me by Dr. Savage. I found that she had always been in indifferent health, and during the last three years had gradually lost the power over her arms and legs, to such an extent that she was scarcely able to walk even when supported, and entirely incapacitated from doing any work whatever. She first menstruated at 15 years of age, but was always irregular, the discharge being very pale and scanty. Sixteen months ago the catamenia ceased altogether, and



from that time she became nearly idiotic. She was very listless when I first saw her, had a vacant look, and considerable dilatation of both pupils, more especially of the left one. The left iris was scarcely at all influenced even by very strong light. The voice was almost entirely gone; she could only speak in a faint whisper. She was frequently troubled by pain in the head and the back. Her hands and feet were always quite cold. She complained of sickness in the morning, total want of appetite, and constipated bowels. She was always worse after emotions, and had frequently had hysterical fits. The muscles were very badly nourished, but contracted tolerably well under the influence of the electro-magnetic current. Besides, there was nearly complete anæsthesia of the whole left side, including the conjunctiva. On the right side the loss of sensation was not so much marked as on the left; but the prick of a pin was only felt as if it were a touch by some blunt instrument. The examination by Weber's compasses-æsthesiometer did not lead to any results, as the patient could nowhere distinguish whether she was touched by one point

or by two. I determined to apply a continuous current of from 40 to 50 cells of Daniell's battery, in an inverse direction, to the spine, from the nape of the neck downwards to the sacrum, for ten minutes at a time. Such a current does not act directly on the spinal cord, as was asserted by Professor Remak; for the resistance offered to the passage of the current by the bones and membranes enveloping the cord, is too great to be overcome by a current of such tension as we should care to use; but the current affects the cord by reflexion from the sentient nerves of the skin. The principle of reflex action is quite sufficient to explain the physiological and therapeutical action of the current, so that it is not necessary to go out of our way and assume principles of electric-conduction for the human body, different from those which obtain for other physical bodies.

The operation was repeated twice a week. After six weeks the patient was so much improved that she could walk three miles at a time without support; she could dress and feed herself; was able to do heavy work about the house, had

always warm hands and feet, the voice had returned, the bowels acted regularly, and she was cheerful and took an interest in everything relating to her affairs. The pupils also gradually recovered their normal size; and the catamenia re-appeared on the 27th of December, and continued from that time at regular intervals. The patient has several times called upon me since then, and informed me that her health is quite re-established, and the cure, thus far, has been permanent. In this case no medicine was given.

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III.

PROGRESSIVE LOCOMOTOR ATAXY.





GENTLEMEN, —

The disease to which I purpose to draw your attention in this lecture is not a new one, for it was more than thirty years ago described by various authors as *tabes dorsalis*, and more recently, chiefly by French physicians, as *progressive locomotor ataxy*. Yet the nature of the complaint, and the connection which exists between the symptoms manifested during life and the structural changes found after death, have, until quite recently, been misunderstood, and I therefore offer no further apology for bringing this important subject under your notice. Before, however, proceeding to a description of the disease as it is now known, I will say a few words about its name and history, showing the steps by which we have gradually attained to that knowledge of its character which we possess at present.

*Tabes dorsalis* is first spoken of in the works of Hippocrates, and was by the father of medical literature believed to arise from excesses in sexual intercourse, the chief symptoms of the disease being spermatorrhœa, marasmus, and hectic fever. This meaning of the term, however, has gradually changed, and those authors who wrote on *tabes* in the first decennia of this century, understood by it atrophy of the posterior portion of the spinal cord, brought on, not merely by sexual exhaustion, but also by exposure to wet, rheumatism, gout, and other causes, the chief symptom being a peculiar form of paraplegia. The disorder was chiefly investigated by English and German physicians, such as Abercrombie, Hufeland, Steinthal, Romberg, and others. Their descriptions, although in some instances most eloquent, were, however, to a certain extent, wanting in accuracy, inasmuch as several different affections of the cord were comprehended under the name of *tabes*, and a clear distinction was not drawn between *tabes* and paraplegia. It was only after a more careful clinical study of the symptoms had been made, and after pathological anatomy, aided by the micro-

scope, had stepped in, that a peculiar disease of itself, and one characterized by uniform structural lesions, could take its place in our nosological system. The chief credit of the anatomical investigations is due to Professors Virchow, Türck, Rokitansky, and Leyden, and in this country to Dr. Gull and Mr. Lockhart Clarke, who have shown that, in well-marked cases of tabes, an actual waste of nerve-fibres of the posterior columns of the spinal cord takes place, together with the formation of amyloid corpuscles, and considerable proliferation of connective tissue.

The first who drew a distinction between this disease and paralysis was Dr. Todd. He said, in an article on the nervous system in his *Cyclopædia*, that two kinds of paralysis might be noticed in the lower extremities: the one consisting simply in the impairment or loss of voluntary motion; the other distinguished by a diminution or total absence of the power of co-ordinating movements. In the latter form, while considerable muscular power remained, the patient found great difficulty in walking, and the gait was so tottering and uncertain that his centre of gravity was easily dis-

placed. In these few words we have a good description of the symptom of *ataxy*,\* upon which lately so much stress has been laid by French physicians. The term "*ataxy*" is as old as that of "*tabes*," for it also originated with Hippocrates; and it has likewise entirely changed its meaning in the course of time. Some authors have applied it to chorea, others to fevers, others to various nervous disorders. At present, however, we understand by *ataxy*, not a disease of itself, but merely a symptom to which various disorders may give rise, and which essentially consists of a want of co-ordination of voluntary movements, and a tendency on the part of the patient to lose his balance, but without actual loss of power, and apart from tremor, chorea, and paralysis. This symptom may be observed in disease of the cerebellum, and in poisoning by alcohol, lead, and mercury; but it is more especially connected with that disease which has been long familiar to us as *tabes*. The best clinical study of this symptom we owe to M. Duchenne de Boulogne, who from 1858 up to this time has published a number of memoirs, in

\* From *τάξις*, *order*, and privative alpha (want of order).

which he described what he thought to be an entirely new disease, which he called "progressive locomotor ataxy," and which he believed to be a functional disorder of the cerebellum. His apparent discovery was hailed as a real one in France, and Professor Trousseau actually proposed to call the new stranger "Duchenne's disease;" but on looking more closely into the matter we find that Duchenne's description is altogether applicable to our old friend, tabes. I have not the slightest hesitation in acknowledging the great ability and originality of M. Duchenne's researches, which were perhaps more strikingly displayed in this case just on account of his being unacquainted with the previous literature on the subject; yet, if I thought it desirable to attach a proper name to this affection, I should prefer calling it "Todd's disease," as Todd first drew the distinction between ataxy and paralysis, eleven years previous to Duchenne. But the best plan is, perhaps, merely to drop the term "tabes," as being too vague, and to call the disease under consideration progressive locomotor ataxy, or wasting of the posterior columns of the spinal cord.

The following details of a case of this affection which I have had under my observation for about five years, are well suited to illustrate the symptoms and progress of the disease :—

R. B——, a commercial traveller, aged thirty-seven, a tall and rather spare man, with a sallow complexion, first consulted me in February, 1860, when he gave me the following history. His mother had always been healthy, but his father had for the greater part of his life suffered from epilepsy, and died in a fit. The patient was brought up to the law; but in consequence of a disappointment he left that profession, and enlisted as a soldier. He served in Australia and Canada, and during that time suffered much from rheumatism. He never exceeded in drinking, but occasionally in sexual intercourse. He twice had gonorrhœa, but no syphilis. He suffered for a long time from hæmorrhoids, for which, in 1855, he underwent the operation by ligature, and he ascribed the commencement of his present illness to that operation, saying that he never felt quite the same man after the hæmorrhoidal flow had ceased. He left the army in 1856, and married.



He is now father of a healthy child. For the last eighteen months he has been a commercial traveller, and as such he is always on the move, and frequently exposed to cold, damp, and great fatigue. In January, 1857, he first noticed that his sight became weak, and he had some difficulty in writing and reading small print. Soon after he felt pains of a peculiar character, which he described as electric shocks through the legs, and as if the muscles were being rent asunder. These shocks came every two or three minutes. He underwent treatment by liniments and other external applications, but without relief. His gait now became tottering, and he had considerable difficulty in walking. He never goes out without a stick, and sometimes he is obliged to use two. In the summer of 1859 he consulted the late Dr. Todd, who told him that his case was incurable, and that he would have to lie on the sofa for the rest of his life. He prescribed strychnine and iron, and after having taken it for some time the patient felt rather stronger, but there was no improvement in the special symptoms of the disease.

Present state, February 14th, 1860:—The

patient's intellect, memory, and speech, are quite normal. He does not suffer from headache, giddiness, strabismus, or ptosis. Both pupils are enlarged, the left more so than the right. He complains of weak sight, and the ophthalmoscopic examination shows the arteries of the optic nerve smaller than usual. His senses of hearing, smell, and taste are natural. Respiration and heart-sounds normal; pulse at the wrist rather feeble, but quite regular. His digestion is tolerably good. Tongue clean, appetite satisfactory, but bowels rather costive. He complains of a sensation as if a net were tightly drawn round the abdomen. He is occasionally troubled in passing the urine, but there is no stricture. The urine is of 1030 specific gravity, and contains a sediment of urates, but no excess of phosphates, and no albumen or sugar. The sexual power has not notably diminished of late. On examination of the back by pressure, percussion, galvanism, and hot sponges, no place can be discovered which is particularly sensitive. The patient complains of numbness in the hands, more especially in the third and fourth fingers of the left hand. He can distinguish heat

and cold, and feels the prick of a pin and pressure distinctly; yet the æsthesiometer shows a considerable diminution of tactile sensibility in the fingers. The upper extremities are pretty well nourished, and the muscles answer well to a galvanic current of moderate power. He can bend and stretch the arms with force, but he finds it difficult to button his shirt and to feed himself. The lower extremities are more affected than the upper ones. The patient has had sensations of "pins and needles" in the feet, but these have for some time past given place to numbness. He says that in walking he has a sensation as if he trod on cotton or springs, and when going upstairs he feels as if the steps rose under his feet. He must continually look at his limbs in order not to lose his balance, and can scarcely walk at all in the dark. If told to shut the eyes, or stand with both feet together, he begins to stagger. In walking, he throws the legs forwards with a jerking motion; and, as he cannot measure his distance from the ground, he puts his foot down with great force. If lying down, he can bend and stretch the legs with considerable power, but he seems to exag-

gerate every moment, all muscular contractions being not slow and equable, but violent, sudden, and jerking.

I ordered the patient thirty minims of the syrup of iodide of iron three times a day, sulphur baths twice a week, and a pill of aloes and myrrh at bedtime. After having used these remedies for about a month, there was marked improvement in every respect. The pains were nearly gone, the sight was rather better, the walking decidedly steadier and less fatiguing, and the feeling of numbness slighter. He went on favourably until March, 1861, when, having had a long and laborious journey to perform, he returned considerably worse, and from that time the disease gradually gained upon him, in spite of all treatment. In 1863 he had a course of nitrate of silver, but the affection was then evidently too far advanced for any medication to do good. The sight got rapidly worse, and he became at last completely amaurotic. The sensation in the lower extremities was also entirely lost. The patient was now confined to his room, and during the last six months of his life he never left his bed. His intellect remained

unimpaired to the last, and his disposition was always cheerful. He died in January, 1865, of a sharp attack of bronchitis.

#### PATHOLOGICAL ANATOMY.

On opening the spine, the vertebræ and the vertebral canal appear healthy. The sac of the dura mater often contains a somewhat considerable amount of clear or slightly turbid liquid. The membranes themselves may be normal, but in some cases, the *posterior* part of the dura has been found thickened, and adherent to the pia by thin false membranes. Nothing of this kind is found at the *anterior* part of the dura. The posterior part of the pia is almost always less transparent than it should be; and presents a yellowish or milky appearance. It is often so firmly adherent to the substance of the posterior columns that it cannot be separated from them without tearing off some portions of the medullary matter. These changes have, however, only been noticed in about one-half of the cases examined, and we must, therefore, consider them rather as incidental, than as pathognomonic appearances. The latter

are found in the cord itself, which shows in its posterior columns, a peculiar grey coloration which is not superficial, but embraces their entire depth, and constitutes the characteristic anatomical feature of the disease, being always connected with a definite alteration of the intimate structure of the cord. In cases where the pia is opaque, it is necessary to remove it to show the grey coloration, but where that membrane is transparent, it becomes visible immediately upon the removal of the dura. We then see, instead of the white matter of the posterior columns, either one or two grey bands proceeding from the lower end of the cord to the middle of its dorsal portion, and occupying the whole space between the opposite insertions of the posterior roots. As we proceed higher up, these bands become narrower, and often separate into smaller stripes, which run up to the calamus scriptorius and the floor of the fourth ventricle.

The grey colour of the posterior columns is sometimes uniform throughout, in other cases it is dark in the median line, and light laterally. Occasionally the grey merges into amber, pink



or reddish yellow, according to the stages of the degenerative process. Generally, however, it is so similar to that of the healthy grey matter, that Olivier believed the whole process to be one of hypertrophy of the latter substance. Laterally the grey coloration is mostly limited by the posterior horns, and centrally by the commissure. This commissure and the central part of the grey matter are sometimes also affected, and in far advanced cases the disease may even extend to the lateral columns; while the anterior horns, columns and roots are always healthy.

As regards the *shape* of the cord, it appears flattened from before backwards, so that at first sight it would seem to be actually enlarged. Such, however, is not the case, for the flattening results from the diminution of the bulk of the posterior columns, which are always smaller than usual. Where the disease has been severe, the posterior columns may be entirely wanting, being replaced by a thin band of connective tissue. The *consistence* of the grey matter and of the antero-lateral columns is normal, which may also be the case with the posterior columns; occasionally,

however, these latter are found softened, and even semi-fluid.

The posterior roots are, in most cases, similarly affected to the posterior columns. Sometimes the whole substance of the root is in a state of degeneration, in other instances the grey stripes alternate with healthy white bands. The lower roots are generally more affected than the upper ones.

If we now ask ourselves Which of the two is the primary and essential change, that in the *cord* or in the *roots*? the answer cannot be doubtful. The affection of the roots must be secondary to that of the columns:—

1stly. Because in a certain number of cases the posterior *columns* have been found diseased, while the *roots* were healthy.

2ndly. Because in other instances where both were diseased, the columns were in a far more advanced stage of degeneration than the roots.

3rdly. Because in most cases, although columns as well as roots may be diseased at a *lower* part of the cord, yet, further upwards, the columns may show extensive disease, while the roots appear

healthy; and lastly, because in no case has there been atrophy of posterior roots without simultaneous atrophy of posterior columns.

In the upper portion of the cerebro-spinal axis the disease is always less severe than in the lower part. The calamus scriptorius occasionally shows traces of it, but the cerebellum which has in all cases been examined with the greatest care, has always been found healthy. This latter circumstance has caused considerable disappointment to certain pathologists who concluded *à priori*, from physiological premises, that structural changes of the cerebellum *must* be found in progressive ataxy. Such, however, is not the case, and this shows again how necessary it is to be cautious in the application of physiological theories to pathological processes.

The cerebral nerves have only been examined in a few cases, and consequently our knowledge regarding the structural changes in them is still very deficient. The optic nerves have several times been found softened or entirely destroyed, only a few fibrous strings being seen in place of nervous matter. The ulceration may spread to

the chiasma, but stops short at the corpora geniculata. In the retina it proceeds from the papilla to the periphery of that membrane. The other cerebral nerves are only seldom diseased. In one case, the olfactory nerves, although apparently healthy, were, on being examined with the microscope, found to be almost smothered by amyloid corpuscles. The motor oculi, the hypoglossus, and the vagus have been found injured in a few cases. These results correspond entirely with the symptoms observed during life; for while the cord and the optic nerves, when once thoroughly diseased, are generally permanently disabled, the symptoms referable to the other cerebral nerves almost always disappear after a short time.

I shall now describe the more minute structural changes found in the nervous matter by the aid of the microscope. In conducting such investigations, it is advisable first to harden the parts artificially by putting them for a day or two into alcohol, and afterwards for a few days into a weak solution of chromic acid. If the specimens have been thus prepared, fine sections can easily be

made. The first thing which is then observed is that, whereas a section of healthy nervous matter taken from the anterior columns is dark, one from the diseased posterior columns is transparent. This results from the fact that in the anterior columns healthy nerve-tubes are crowded together, while in the posterior columns most of them have been destroyed by the disease, and are replaced by a clear and nearly homogenous mass, which contains a number of small granules, and connective tissue.

In order to show distinctly the relations between nerve-tubes and connective tissue, the specimens should be put into a mixture of alcohol and turpentine, whereby the myeline contained in the nerve-tubes becomes so transparent that it seems to have almost disappeared, and offers no impediment to a clear view of the connective tissue, with all its ramifications, more especially if we add a solution of carmine, whereby the meshes of the connective tissue acquire a red colour. Again, if we wish to know what has become of the nerve-tubes, the specimens should be left for a long time in chromic acid, and then treated with alcohol and

turpentine, but not with carmine. By this proceeding, the nerves, and especially the myeline contained in them, acquire a slightly yellow or greyish tinge, and form a striking contrast to the uncoloured connective tissue. The polarised light may also be made use of in such researches. For this, specimens are put into glycerine, and in a dark field we may then easily recognise the myeline by its milky mother-of-pearl appearance.

By using these means, the following circumstances are elicited:—The nerve-tubes are either diseased or entirely destroyed. They often appear granular, varicose, more narrow than usual, and nearly or entirely devoid of myeline and the cylinder axis. Besides these diseased nerves we find proliferation of connective tissue, slender fibres, round cells whose membrane nearly touches the nucleus, a more considerable number of free nuclei, and from one to four nucleoli in one nucleus. Capillary vessels may also be discovered, which are either healthy or diseased. The adventitia is often very much thickened, and the vessels appear surrounded by oil-globules.



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Finally, we meet with a large number of amyloid corpuscles, presenting the well-known mother-of-pearl appearance. They are most numerous along the course of the blood-vessels, and seem to abound chiefly where the degeneration is not very far advanced, while they are less frequent where an entire destruction of nervous matter has taken place. The process may, therefore, be characterised as one of destruction of nervous matter, proliferation of connective tissue, degeneration of blood-vessels, and formation of corpora amylacea and oil-globules. It resembles both chronic inflammation and simple atrophy, but neither of them altogether, and should therefore be looked upon as one "*sui generis*."

#### SYMPTOMS AND PROGRESS.

I now proceed to analyse the symptoms and progress of the disease. Duchenne has distinguished three stages of ataxy, and although these are by no means always so well defined as this author would lead us to believe, yet his division may, with certain modifications, be adopted for the sake of convenience. The first stage is mark-

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ed by certain affections of the cerebral nerves, pains of a peculiar character, and diminution of sexual power ; it generally lasts from four to five years, sometimes for a much shorter, sometimes for a longer period. In the second stage the symptom of ataxy supervenes, together with loss of sensibility ; this may last ten years and more. In the third stage the symptoms of the first and second stage become more severe ; complications, such as paralysis and spasms arise, and death results from exhaustion, or from intercurrent diseases.

The commencement of progressive ataxy is either slow or subacute. One or more of the cerebral nerves are generally the first to suffer ; those most frequently affected being the optic, and the third, fourth, and sixth, pairs. The chief symptoms are, therefore, amblyopia, double vision, strabismus, and ptosis. Sometimes there is even treble vision, or two images may be observed by one eye, while the other is closed—symptoms which have not yet found a satisfactory physiological explanation. The ophthalmoscopic examination of the fundus oculi shows, at first,

symptoms of congestion; the capillaries are diseased, and the whole fundus has a violet colour. Amongst the symptoms mentioned, strabismus and double vision have the tendency to disappear within a few months, with or without treatment; ptosis is liable to continue much longer, and amblyopia almost always, in the course of time, merges into amaurosis. The ophthalmoscope then shows evident symptoms of atrophy of the retina; the diameter of the blood vessels is diminished, the papilla is of a greyish or mother-of-pearl hue and excavated, and a white circle is seen at its margin. These facts are important as regards prognosis, for while we may reasonably hope that strabismus and double vision will disappear of themselves, ptosis and amblyopia offer less favourable prospects. From this it is easy to understand why double vision and strabismus have not been mentioned in the description of tabes by the older observers, these symptoms having escaped their attention, from not being present at an advanced stage of the disorder.

The other cerebral nerves may also show signs of paralysis, with the only exception of the

olfactory; there may be loss of taste, deafness, difficulty of mastication, dysphagia, and numbness or loss of sensation of the face, lips, tongue and gums. These latter symptoms are, however, comparatively rare.

Almost all diseases of the cord are accompanied by *pain*, but progressive ataxy more frequently than any other. Pain of a peculiar character constitutes, indeed, one of the most distressing symptoms of this affection. The sensations are short, sharp, and sudden, similar to electric shocks. After a second or two the pain is gone, and the patient has a short interval of rest; but soon there is another pang, and this may go on for two or three days consecutively, after which there is a free interval of a few weeks or even months. During such paroxysms the patient is mostly obliged to be in bed, and their effect on the general health is prejudicial. The pains often begin in the feet, then migrate about the body, sparing only the head, and finally settle in one of the legs, from where, as the disease advances, they gradually proceed upwards. During the attacks neither swelling nor redness is perceptible in the

parts affected, but after some time considerable hyperæsthesia sets in, so that the patient is exceedingly sensitive to touch or even a slight draught of air. In other cases there is no hyperæsthesia, but numbness, and strong pressure relieves the pain. If the eyes are attacked, a flow of tears, heat and dilatation of the pupils are caused; if the bladder is invaded, catarrh of that organ may be produced.

As time wears on, the pains generally increase in severity, and appear at shorter intervals. They are most liable to come on when sudden atmospheric changes occur, and after exposure to wet, or after excesses in walking, drinking, or sexual intercourse. The patients generally dread winter. As spring advances they frequently improve, and this is often believed to be due to the remedies which happen to be employed about that time. Some patients are, by an increase in the severity of the pains, able to predict, with considerable certainty, an impending change in the weather.

Spermatorrhœa is another important symptom, but it is absent in a number of cases. Where it

is present, it seems to accelerate the progress of the disease. Emissions occur first at night, and with erections; after a time they likewise occur in the daytime, and without erections, more especially on voiding the bowels. If this condition is allowed to go on for some years, impotence is the final result, but under the influence of a suitable *régime* and treatment it is often improved or cured. In exceptional cases the disease is ushered in by priapism and satyriasis. Eisenmann has recorded a case in which these latter symptoms continued more or less for thirty years, and were only relieved by large doses of opium.

The bladder and rectum may also be affected in the first period of progressive ataxy, but they are more generally so in the second. Constipation is the rule, while involuntary fæcal discharges are rare. The bladder is not sufficiently emptied, and the urine is passed tardily. Incontinence may also be present, but this is often promptly relieved.

After one or several of these symptoms have continued for some time, other morbid signs present themselves, either suddenly or gradually, and



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by which the second period of the complaint is marked; the most important one of these, and from which the disease has received its name, is the locomotor ataxy, which consists of a peculiar disturbance of locomotion, as well as of equilibration. Volition loses its influence over the muscles, which, although still possessed of great intrinsic force, are nevertheless unable to execute complex movements, or preserve the equilibrium of the body in its erect position. And here I would direct attention to a fact which was first prominently dwelt upon by Duchenne—viz., that co-ordination is composed of two several kinds of muscular action, that is, of the harmony between the antagonists, and of instinctive or voluntary associations of muscles. In voluntary movements the antagonists are not, as is generally believed, inactive, but every such movement is the result of a two-fold nervous action, by means of which both flexors and extensors are made to perform simultaneously, so that one set produces, and the other moderates and tempers, the movements. Without this co-operation of antagonists, all movements become devoid of certainty and preci-

sion. Now, in progressive ataxy, the patient first loses his instinctive faculty of regulating the kind and extent of his muscular actions, although he may still be able to associate muscles to contract in order to produce certain movements. In Nature isolated muscular contractions do not occur; they may be obtained by artificial means, such as Faradisation, but not physiologically. Most muscular functions, in fact, require a large number of simultaneous movements, which are again in their turn only the resultant of several forces. Most of these complex muscular contractions are learned in early life by daily, nay, hourly practice. Every child that first begins to walk, may be said to show locomotor ataxy, and does not learn to walk or stand without having often fallen down, and thus received many practical lessons of the importance of a judicious co-ordination of movements. In after life these complex muscular contractions occur instinctively, almost mechanically, and without an effort of volition; and the loss of this faculty is what we have to understand by the term locomotor ataxy.

This generally begins in the lower extremities.

The patient first notices an awkwardness in his movements when he walks in the dark, or in the morning while he is dressing. He soon takes to a stick when out of doors, but even with such aid he finds that he has to make considerable efforts to prevent himself from falling. In order to appreciate the degree of ataxy which may be present, we must examine the patient in all positions, whilst standing, walking, and lying down. If he is told to stand with both feet close together, he can seldom keep his balance. He staggers from one side to the other, and manœuvres desperately with his arms, almost like a rope-dancer; but unless he clings to some support, he nevertheless falls down at last. If told to stand with his eyes closed, his struggles to maintain himself are equally distressing. But this alone is not sufficient to enable us to diagnose progressive ataxy, because the same symptoms may be found in persons who have just recovered from acute diseases, or who suffer from certain affections of the brain, or who are reduced by bad living, and in a weakly condition.

The ataxy becomes much more apparent if the patient is told to walk. He throws the legs for-

ward with a jerking motion, and puts the feet down with great force. In turning round, he is especially awkward. At the commencement of the affection the patient can still walk a considerable distance, and feels the difficulty chiefly on first starting, or changing his direction. But as the disease advances, walking becomes almost or quite impossible. The patient is still able to make strong muscular exertions, and on trying to walk, flexors as well as extensors feel hard and contracted; yet he does not succeed in doing that which other persons accomplish without an effort. At first the ataxy is most striking in the pelvic and femoral muscles. But after a time it becomes also apparent in the leg and foot. The sole seems continually to search for support, one leg is crossed over the other, or jerked about in a disorderly manner, without the slightest intent or purpose. All efforts to check these movements are ineffectual and only serve to increase them. The patient soon becomes exhausted by the expenditure of so large an amount of muscular force, and is glad to get back into bed.

If we examine the patient while he is lying

down, and tell him to flex or extend his limbs, he often does so in an abrupt and sudden manner. In a somewhat advanced stage of the disease no graceful or easy movement is possible: he does not know what force to use, or where to stop, and he cannot continue a given movement for a certain length of time. How great is the difference between this condition and that of a paralysed person! The atactic patient has a great deal of power, and is able to make Herculean efforts to do what he is told, but he does not know how to do it, and expends his force in vain. In the paralytic, on the contrary, the power is lost, or greatly diminished; he cannot move, or if he succeeds in doing so, it is a feeble motion, although one not devoid of purpose.

In the upper extremities ataxy is not so well marked, nor so frequent as in the lower ones; and it mostly appears only at a later period of the disease. If the patient is told to touch his nose with the tip of the forefinger, to pick up a pencil or a piece of money, to describe a circle in the air, &c., the ataxy becomes apparent, more especially if he closes the eyes. He cannot write in a straight line,

and is very awkward in dressing and feeding himself. The muscles of the face are only rarely affected; sometimes, however, there is facial spasm and difficulty of articulation.

Disturbances of not less importance are at the same time observed in the sphere of sensibility. When questioned, the patient generally mentions a feeling of numbness or heaviness in a limb or part of a limb, which may exist without any loss of sensation in the skin or other parts. It generally commences in the toes, or the soles of the feet, and from there gradually spreads upwards to the abdomen and the chest, which feel as if constricted by a circular band, a net, or a tight string. Where this feeling invades the chest, dyspnœa is also present. In the upper extremities the numbness is generally confined to the third and little finger, and only seldom spreads higher up. Numbness in the legs, and especially in the soles of the feet, is one of the most constant symptoms of the disease, and if absent, must make us doubtful whether the case is really one of ataxy or not; and when it diminishes or disappears, we may say with certainty that an improvement has taken



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Anæsthesia is a frequent, but by no means constant symptom of ataxy, and generally appears only at a somewhat later period of the disease. We have here to distinguish several forms of anæsthesia, viz.—loss of the sensation of pain, which is also called analgesia; loss of the sense of touch, which is anæsthesia properly so called; loss of the sense of locality, loss of the sensation of temperature, and finally, loss of the sensation of pressure.

Sensibility to pain is generally diminished or even entirely destroyed. You may prick the patient with a pin or needle, or you may pinch his skin, and he will not feel it at all, or he will merely feel it as a touch. Cruveilhier mentions the case of such a patient who had suffered a fracture of the leg, and neither at the time of the accident, nor afterwards, had felt any pain whatever. The sensibility to galvanism is also diminished, as the patient is able to bear the application of a very powerful current without the slightest inconvenience. The sense of touch is affected in a like manner. If he is told to close the eyes, and something is then given him to touch, he is not able

to distinguish the nature of the object. This loss of the sense of touch is not confined to the upper or lower extremities, but may extend to the neck, tongue, and soft palate. A very common symptom is tardy sensation, so that when touched, the patient only feels it five or ten seconds afterwards. If the soles of the feet are tickled, there are scarcely any or no reflex movements, and the perception of it is dull or absent.

The sense of locality is often wanting, therefore the patient, if touched in a particular part of the body, cannot tell you where he is touched. At the same time, the distance at which two separate sensations are perceived as such, is increased, as is well shown by examining the patient with Weber's pair of compasses. In the legs, where the normal distance for two separate sensations is an inch and a half, the patient is sometimes altogether unable to feel them as such, while in the face and the fingers he may still be able to do so.

A curious fact is, that the *sense of temperature* is only seldom deficient. Persons in good health are able to distinguish with certainty a difference of one, or even a half degree. Objects which are

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warmer than 90° give a sensation of heat, and such as are below 90° feel cold. Now, patients suffering from ataxy, although they may have entirely lost all other sensations, are yet often able to distinguish between different temperatures. Thus, M. Topinard relates a case which was observed in Trousseau's wards in the Hôtel-Dieu, and where the patient was affected by double amaurosis, absolute anæsthesia as regards touch, pain, and locality, ataxy of motion to such an extent that he had not been out of bed for two months, who had completely lost his muscular sense, and who had only the sensation of heat and cold to tell him that he still had his limbs. Sometimes his legs would be jerked out of bed by spasms which he did not feel, and which, being blind, he could not see. Then, after a time, a sensation of cold would creep upon him, and the poor fellow would ask whether anything was the matter with his legs. This patient existed, as it were, only by his memory, as he had lost the consciousness of his body. But even the sense of temperature may be wanting. Leyden mentions the case of a patient who prepared a warm bath

for himself, and not being able to distinguish between heat and cold, he made it very hot, and was severely scalded on going into it.

The last disturbance of sensibility we have to notice is that of the *sense of pressure*, which resides in the nerves of the skin and the deeper parts—viz., the cellular tissue, the muscles, and periosteum. The sensation of pressure is produced by weights resting on certain parts of the body, more especially on bones. M. Eigenbrod, who had studied the changes which this sense undergoes in various affections, has found that there is a considerable diminution of it in ataxy. Persons in good health are generally able to distinguish a weight of thirty from one which is only twenty-nine pounds, but patients suffering from ataxy lose this faculty to a great extent. It has been shown by experiments that, if the sense of pressure in the soles of the feet is diminished by the application of ice or chloroform, the gait becomes tottering: it is, therefore, permitted to suppose that the uncertain walk of atactic patients is partly due to the diminution of the sense of pressure, a firm gait being only possible where there is a proper sensation of

the resistance offered by the ground on which we walk.

In the third period of the disease we observe all the symptoms which are present in the second, only in a more marked degree. Sensation becomes more and more impaired, the ataxy more striking, and muscular force, which was previously intact, also begins to suffer. A semi-paralytic condition is gradually induced. The patient cannot grasp any objects with sufficient force; he cannot offer any resistance to movements imparted to his limbs by others; he has difficulty in raising his legs when in bed; and if he attempts to walk, the feet drag on the ground. Occasionally the muscles become atrophied, and undergo fatty degeneration. Spasms may supervene, which are most troublesome at night and when the weather is damp. Where there has been amblyopia, it merges into complete amaurosis; there is paralysis of the bladder, incontinence or retention of urine, involuntary evacuations of fæces, and at last decubitus on the sacrum, unless great care is taken to prevent it. Death takes place either from this latter complication, or from inflammation of the bladder and

kidneys, or from intercurrent diseases, such a bronchitis, pneumonia, and phthisis.

A curious symptom remains to be mentioned—viz., the state of mind of such patients. Unless they suffer from severe pains, they are mostly, if not happy, at all events resigned to their fate. They do not complain much, and are inclined to think lightly of their affection. In this respect progressive ataxy resembles pulmonary consumption, in which the mind is also often composed and cheerful, while in diseases of the brain and the liver there is almost always great depression or irritability, or both combined.

#### CAUSES.

The causes of progressive locomotor ataxy now remain to be mentioned. As regards age, we find that most patients are between thirty and fifty years. The disease is very rare in old people, and is not seen before the age of fifteen. The male sex is more disposed to it than the female. Romberg says that scarcely one-eighth of the cases are females. In the observations recorded by French authors and tabulated by M. Topinard, the proportion is



of one female to four males. Amongst the nine cases which I have observed, not one occurred in a woman. As regards occupation, it appears that persons who are much exposed to cold, damp, and fatigue, are more liable to it than others. Two of my patients were commercial travellers, who were continually on the move. Another patient, a young man who had been in good health before the disease broke out, attributed his illness to his having been obliged, after a ball in which he had taken active part, to walk home in thin boots in a pelting rain, having been unable to get a conveyance. In this case the symptoms supervened with great rapidity.

Soldiers are also very liable to it. "The malady is rife," says Romberg, "when the strength is much taxed by continued standing in a bent posture, by forced marches, and the catarrhal influences of wet bivouacs, followed by drunkenness and debauchery, as is so often the case in campaigns; and this is the reason why *tabes dorsalis* was so frequent during the first decennia following the great French wars of the present century."

The malady breaks out more frequently in

autumn and winter than in spring and summer. Most patients who have the disease improve during the summer months; and we must, therefore, be cautious to ascribe any beneficial results which may appear then to the treatment employed; while, if they get better in winter, there is far more probability of the remedies used having been of actual service.

We have at present no sufficient data to say whether sexual excesses may cause the complaint. On the whole, experience goes far to prove that such excesses tend more to produce cerebral than spinal affections. At all events, I think it erroneous to put down such excesses as the chief cause of progressive ataxy, as was done in former times.

Emotion and anxiety, combined with overwork and bad living, are no doubt potent causes; but syphilis seems to have little or nothing to do with the disease.

Suppression of habitual perspiration, especially of the feet, has been mentioned as a cause in several instances. In the case related above, the patient himself believed that the suppression of the

hæmorrhoidal flow was the cause of it. Sometimes the affection is hereditary. Children of parents who have suffered from epilepsy and other nervous disorders, are more liable to it than children of healthy parents. Accidents have often seemed to cause the outbreak of the complaint.

#### DIAGNOSIS.

A decided opinion of the nature of the disease can scarcely be formed in the first period. We may certainly have our suspicions of ataxy threatening the patient if we find that he has been much exposed to cold, damp, and fatigue, that he has committed excesses of various kinds, and suffers from the pains described above, together with strabismus, amblyopia, and anaphrodisia; but all such symptoms may be due to syphilis, rheumatic diathesis, and other diseases. Diagnosis is very easy in the second stage of the distemper, but it must be borne in mind that with the only exception of the symptom of ataxy itself, all other functional disturbances previously described as belonging to that stage may be absent. In the third period, diagnosis may become difficult in

consequence of complications which arise, such as paralysis; the affection can then no longer be called ataxy proper, as the degeneration has already spread to the grey matter and the lateral columns of the cord.

There are few diseases which could be confounded with ataxy. In *chronic myelitis* we have, as a rule, no ataxy, but paralysis; moreover, the cerebral nerves do not suffer in that affection, and all symptoms are referable to simple inflammation. There is fixed pain at a certain point of the back, which is increased by pressure; besides which we have muscular spasms, diminution of muscular contractility, and atrophy of muscular substance.

From *disease of the cerebellum* ataxy may be distinguished by the absence of the fixed and permanent pain in the back of the head, and of the vomiting, both of which symptoms are generally present where the cerebellum is diseased. The cerebral nerves may suffer alike in both affections; but the progress of these disturbances is not the same, for while in ataxy the double vision and strabismus come on suddenly, and

generally disappear within a few weeks or months, in disease of the cerebellum they continue after having once commenced. In these affections the symptom of ataxy is by no means constant; sometimes there is, instead of it, an impulse to rush forwards or backwards; or the patient may be simply unable to keep his balance. Vertigo, convulsions of the face and limbs, and epileptiform seizures, which are common in diseases of the cerebellum, scarcely ever occur in progressive ataxy. With softening of the brain ataxy can scarcely be confounded, as in that affection we have mostly hemiplegia, and early impaired intellect and memory. In *general paralysis* there is weakness of the intellect and loss of muscular force, while in ataxy neither the intellect nor the muscles suffer.

*Chronic poisoning by alcohol and brain-syphilis* may give rise to the symptom of ataxy, but in most cases there are other characteristic indications which cannot fail to lead us on the right track. Where the affection of the brain is the only sign of venereal disease, which it is in exceptional cases, the effect of the treatment may

guide us in our diagnosis. If nitrate of silver and hypophosphite of lime should fail to retard the progress of the disease, we may try iodide of potassium; and if this should prove curative, the affection was most likely of a syphilitic kind.

*Paralysis of the muscular sense* is an affection quite different from ataxy. In the former, the guiding power of the muscular sense is lost, so that, in moving his limb, the patient has to trust exclusively to the sense of sight as a guide. The power of the muscles is as great as ever, but the patient is unable to make the slightest movement in the dark. In the daytime he can move the limbs quite well, provided he keeps his eyes steadily fixed on the parts; but as soon as anything else attracts his attention, and he turns the eyes in a different direction, his movements are arrested. The difference between this affection and ataxy may be easily perceived; I will merely add that paralysis of the muscular sense is not a disease of itself, but only a symptom, which may supervene in several nervous affections.



## PROGNOSIS AND TREATMENT.

The prognosis is not favourable, for up to the present time not a single case is on record in which perfect recovery has ensued. Indeed, as late as 1851, Romberg wrote that there was no hope for patients of this class, that a fatal issue was inevitable, and that it was but common humanity to inform them that therapeutic interference could only injure. This sad confession of impotence need no longer be made, and we may certainly congratulate ourselves on having far more control over the disease than we had formerly. Moreover, its progress is seldom rapid, although acute intercurrent disorders, such as erysipelas, bronchitis, and pneumonia, are grave complications which may carry the patient off suddenly. Much must depend upon the period at which the case comes under treatment. If all the symptoms of the disorder are fully developed, the hope of a cure may be slight, although even then much may be done to alleviate the patient's suffering. The case is different if the patient presents himself in an early stage of the disorder. The fact that the cerebral

nerves, with the exception of the optic, generally recover from their affections in the course of the disease, goes far to prove that previous to the structural changes in the cord there is a functional stage, in which much may be done by medicines. Moreover, we must bear in mind that Messrs. Charcot and Vulpian have found nervous fibres in the process of reparation in the cord of a man who had died of ataxy; and that therefore even at a later time we must not give up hope altogether, especially if the patient is placed in favourable circumstances.

I now come to the treatment of ataxy, and will first say a few words about diet and regimen. This must depend a good deal upon the condition in which the patient is at the time he comes under treatment. If he is in a weakly state, plain and nourishing diet, with iron, quinine, and cod-liver oil, should be prescribed. I have never seen a case in which lowering did any good. Hippocrates has recommended milk diet in erotic tabes, and Eisenmann speaks highly of the same in progressive ataxy. I have often given milk-and-brandy, two and even three times a day, with

decided benefit to the general health; but have never found it expedient to insist on an exclusive milk diet. Exercise should be very moderate; and for those who have undergone great fatigue, rest is most beneficial.

Counter-irritants to the spine have been used by many physicians, but, as a rule, the benefit obtained has not been proportionate to the sufferings inflicted by their application. The moxa, the hot iron, issues, blisters, and leeches have been employed. I give the preference over all of these to the continuous galvanic current, applied to the lower and middle portion of the spine. It has in several cases seemed to me of decided benefit in lessening the pains, and also the disagreeable feeling of constriction which is often felt at the abdomen and the chest. The action of this agent is as rapid as that of the iron; its application entails far less trouble and suffering than this latter; and its efficacy is superior to that of issues, blisters, and leeches. Dry cupping on both sides of the spine is also useful.

Iodide of potassium has been recommended by Duchenne and others; but no cases have been

published in which this remedy has proved successful. On the contrary, several are on record in which it seemed to accelerate the progress of the disease. I have given it in two cases, but without any effect, and am certainly not in favour of its administration. Iodide and bromide of iron are useful, but do not effect a cure. Mineral waters have been very frequently employed, both externally and internally; and it seems that for a time they do good. Amongst the French spas, Barèges is the one most recommended; amongst the German waters, Marienbad and Wiesbaden have a special reputation; while chalybeates and indifferent thermal springs, which often prove efficacious in certain forms of paralysis, have entirely failed in ataxy. On the whole, I should be averse to sending atactic patients on a journey to some distant spa, as rest at home, with certain remedies to be mentioned hereafter, is more beneficial than all the mineral waters in the world. If, however, there should be costiveness and abdominal plethora, Carlsbad, Marienbad, or Kissingen water may be drunk at home with benefit. Sulphur baths may also be taken at

home; and I think highly of them. I have never employed them alone; but they certainly seemed, in conjunction with other remedies, to do much in relieving the pains and diminishing the numbness. The patients feel more brisk and supple after the baths, and are almost always desirous of repeating them as often as possible. A sulphur bath may be prepared by dissolving from three to six ounces of the sulphuret of potassium in two pints of warm water, and adding this to the bath. Vapour baths and Turkish baths should be avoided.

Nux vomica and strychnine have frequently been used, but generally seemed to do harm. Duchenne recommends Faradisation, and the late Professor Remak, of Berlin, praised Galvanisation as a curative agent. From Faradisation I have never seen any benefit; Galvanisation has proved useful at my hands not only in the pain and feeling of constriction, but also in the affections of cerebral nerves which are so frequent in the commencement of ataxy; on the other hand, it has been powerless against the disease itself, more especially against the symptom of ataxy.



Amongst the other remedies which have been used in this affection without much result, I will mention opium, bromide of potassium, secale cornutum, essence of turpentine, and arsenic. The only remedy which seems as yet to have done good, in a very large proportion of cases, is the nitrate of silver, given in doses of one-tenth to a half grain, two or three times a day. Professor Wunderlich, of Leipzig, was the first who employed silver in seven cases of this disease, in none of which, it is true, he obtained an actual cure, but in most of them considerable improvement. In 1862, Messrs. Charcot and Vulpian, in France, took up Wunderlich's idea, and used the nitrate in five other cases, and in each of them there was much amendment. Since then, this remedy has been employed in most cases of ataxy, and with somewhat variable success. In some it has so disagreed with the patients that it was necessary to discontinue its use; in others it had little or no effect; while in the majority of cases the remedy has proved, if not curative, at least very useful, and it is the one upon which most reliance can be placed in the treatment of this



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disease. I am in the habit of giving the silver together with the hypophosphite of soda, and this combination seems to answer much better than either of these remedies singly. I have, indeed, now a case of ataxy under my care in which the improvement has, for the last six months, been so considerable under this medication that I am hopeful of a cure. Certain precautions should, however, be taken in administering the nitrate. I generally employ it for four or six weeks consecutively, and then discontinue it for a fortnight or three weeks, giving in the meantime a slightly aperient mineral water. After this the use of the remedy may be safely recommenced, and continued for a month or so. The gums must be inspected from time to time, as the peculiar coloration which silver produces in the long run first appears in the mucous membrane, and only afterwards in the skin. With the precautions mentioned, however, no disfigurement of the patient need be feared. I have never gone beyond the dose of half a grain, and perhaps this is another reason why in my cases the remedy has been borne without any inconvenience. I should,

however, not recommend all cases of ataxy to be treated alike; in this affection we must, as in every other, study each individual case by itself, and advise for it what seems, under the special circumstances, most likely to do good. Thus hysterical or hypochondriacal patients in whom ataxy may supervene, will require a different treatment from plethoric persons, or such as have long suffered from rheumatism, or have been subject to privations and anxiety. Much is, therefore, left to the tact and discrimination which, together with knowledge, should, in all cases brought before him, guide the doings of the physician.

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